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ABSTRACT

This text was to have been the script for the National Air and Space Museum's exhibition of the Enola Gay, focusing on the end of World War II and the decision of the United States to use of the atomic bomb. The Enola Gay was a B-29 aircraft that carried the atomic bomb dropped on Hiroshima, Japan, on August 6, 1945. The atomic bomb brought a sudden end to World War II and ushered in the nuclear age. The event was one of the critical turning points of the 20th century. This exhibition describes the war between Japan and the United States and its allies, the building of the atomic bomb, the decision to use it, the military effort to carry out that mission, the effects of the bombing, and the surrender of Japan. Each entry in the exhibition program would accompany a display at the Smithsonian. [This material offers the educator material to stimulate discussion, analysis, and critical thinking in world history, modern history, or U.S. history courses.] (EH)

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ED 401 218

The Last Act: The Atomic Bomb and the End of World War II.

The Smithsonian Institution
Washington, D.C.

1995

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Exhibition Main Title

THE LAST ACT:
THE ATOMIC BOMB AND THE END OF WORLD WAR II

Exhibition Main Text

Fifty years ago, the atomic bomb brought a sudden end to World War II and ushered in the nuclear age. The event was one of the critical turning points of our century.

This exhibition describes the war between Japan and the United States and its allies, the building of the atomic bomb, the decision to use it, the military effort to carry out that mission, the effects of the bombing, and the surrender of Japan

.EG:000-L1
Main Title

THE WAR IN THE PACIFIC

EG:000-L2
Main Text

Japan's invasion of Manchuria in 1931 began what would evolve into a campaign to take control over East Asia and the western Pacific, creating a new empire which would later be called the "Greater East Asia Co-Prosperity Sphere." Japanese expansionism was marked by naked aggression and extreme brutality. The slaughter of 200,000 to 300,000 Chinese in Nanking in December 1937 shocked the world. Civilians, forced laborers, and prisoners of war were subject to brutal mistreatment, biological experiments, and execution.

On December 7, 1941, Japan attacked Pearl Harbor, Hawaii, in an attempt to destroy the U.S. Pacific Fleet and open the road to further conquests. By spring 1942 the Japanese empire encompassed the Gilbert Islands to the east, most of New Guinea to the southeast, the Netherlands East Indies, Indochina, Thailand, and parts of Burma.

Following hard-fought battles in 1942 between Allied and Japanese naval forces, the Allies took the initiative and began a dual advance through the central and southwest Pacific, converging on the Philippines. With the opening of the Philippine campaign in October 1944, the stage was set for two of the bloodiest battles of the Pacific war: the assaults on Iwo Jima and Okinawa in 1945.

EG:000-L3-P3/P4

The USS Arizona is consumed by fire during the Japanese attack on Pearl Harbor, December 7, 1941. The USS Arizona Memorial (inset) spans the sunken hull of the ship.

EG:000-L4-P4
[label combined with L3]

EG:010-L1
Main Title

JAPANESE EXPANSION

EG:010-L2
Text

A NEW ORDER IN ASIA

Already in control of Manchuria, Japan in mid-1937 escalated a minor incident into a major war, launching a full-scale attack on China. Japanese troops captured the capital of Nanking in December 1937, and by March 1940 they controlled most major Chinese cities.

By July 1941 the Japanese had occupied Indochina, and at that time President Roosevelt froze Japanese assets in the United States and placed an embargo on the shipment of steel and oil to Japan, effectively creating an economic blockade. Soon the Japanese military began to feel the embargo's effect and realized that to keep expanding they had to capture the oil fields of the East Indies. The stage was set for the start of the Pacific war.

The Japanese attack on Pearl Harbor caught U.S. forces there and elsewhere in the Pacific unprepared. The Japanese army and navy swept through the Philippines, south Asia, and the Pacific, and it appeared that the Japanese empire might soon extend all the way to Australia.

EG:010-L3-P3
Map of the Pacific showing Japanese expansion.
[no caption]

EG:010-L4-P4

A Shanghai, China, railway station after a Japanese air raid, 1937.
Courtesy of the National Archives

EG:010-L5-P5

The gunboat USS Panay, part of an international force patrolling the Yangtze River, sinks near Nanking on December 12, 1937, after an unprovoked attack by Japanese bombers.
Courtesy of the U.S. Naval Institute

EG:010-L6
Subtitle

NANKING

EG:010-L7
Text

THE RAPE OF NANKING

The Chinese capital of Nanking fell on December 13, 1937. Surprised and irritated by the strong resistance of the Chinese, Japanese soldiers went on an unprecedented rampage. Some 200,000 to 300,000 Chinese were slaughtered (more than were killed at Hiroshima and Nagasaki combined), and 20,000 women of all ages were raped. The staff of the German Embassy in Nanking reported on the atrocities and described the Japanese army as "bestial machinery."

EG:010-L8-P8

A December 1937 issue of the Tokyo Daily News reported that these two Japanese sergeants, competing in a contest, beheaded 105 and 106 Chinese civilians in Nanking.
Courtesy of the Alliance for Preserving the Truth of the Sino-Japanese War

EG:010-L9-P9

A Japanese soldier about to behead a young Chinese civilian.
Courtesy of the Alliance for Preserving the Truth of the Sino-Japanese War

EG:010-L10-P10

Chinese being buried alive in Nanking.
Courtesy of the Alliance in Memory of Victims of the Nanking Massacre

EG:010-L11-P11

A mass grave of murdered Chinese unearthed near Nanking after the war.
Courtesy of the Alliance in Memory of Victims of the Nanking Massacre

EG:010-L12
Subtitle

PEARL HARBOR

EG:010-L13
Text

"A DATE WHICH WILL LIVE IN INFAMY"
--President Franklin D. Roosevelt

At 7:55 a.m. in Hawaii, Sunday, December 7, 1941, while Japanese diplomats in Washington were negotiating with the State Department, the first planes from a Japanese carrier task force attacked the U.S. military bases at Pearl Harbor and other points on the island of Oahu.

The 363 planes, flying in two waves, caught the Americans by surprise and inflicted severe damage. The Japanese sank five of eight battleships and severely damaged the others. Eleven other ships were also destroyed or damaged. The U.S. suffered heavy casualties--2,330 killed and 1,347 wounded--while the Japanese lost only 29 planes and about 100 men. The Pearl Harbor attack plunged the United States into a just war against Japanese aggression in the Pacific.

EG:010-L14-P14

Only 289 of the 1,466 men aboard the USS Arizona survived the attack. Although 1,104 Navy men and 73 Marines were killed, only 150 bodies were recovered. More than 900 others remain entombed in the hull of the ship.
Courtesy of the National Archives

EG:010-L15-P15

The U.S. fleet under attack.
Courtesy of the National Archives

EG:010-L16-P16

The USS West Virginia settles to the bottom in flames, taking with her 105 men.
Courtesy of the U.S. Naval Institute

EG:010-L17-P17

A Japanese photograph showing "Battleship Row" in Pearl Harbor under attack.
Courtesy of the National Archives

EG:010-L18-P18

A heap of demolished planes and a wrecked hangar at Wheeler Field, Hawaii, following the attack. The Japanese destroyed 188 Army and Navy planes and damaged 159 others.

EG:020-L1
Main Title

THE UNITED STATES GOES TO WAR

EG:020-L2
Text

THE WORLD AT WAR

The Japanese attack on Pearl Harbor drew the United States into a conflict that was to include nearly half the world's population. England joined the United States in declaring war on Japan, and on December 11, 1941, Germany and Italy declared war on the United States.

The U.S. leadership had earlier decided to give first priority to the war in Europe. In the Pacific, the Allies fought a delaying action until enough men and matériel became available for a limited offensive in the fall of 1942.

EG:020-L3
Subtitle

JAPANESE AGGRESSION CONTINUES

EG:020-L4
Text

WAR SPREADS THROUGHOUT ASIA

As Japan's navy attacked Pearl Harbor, its forces also began to overrun most of Southeast Asia. Thailand, Burma, and Malaya quickly fell. By January 2, 1942, Manila, the capital of the Philippines, had been occupied. On February 15 the British surrendered Singapore in Malaya, the worst military disaster ever suffered by a European nation in the Far East. The Japanese continued moving through the Dutch East Indies toward Australia.

EG:020-L5-P5

The crew of the British battleship HMS Prince of Wales transfers from their sinking ship to a destroyer. Japanese bombers sank the Prince of Wales and the cruiser HMS Repulse in the Gulf of Siam on December 10, 1941, causing a loss of 840 officers and men.
Courtesy of the Imperial War Museum

EG:020-L6-P6

Led by Lieutenant General Sakai and Vice Admiral Masaichi, Japanese troops enter Hong Kong, December 26, 1941. British troops surrendered the city after a 17-day siege.
Courtesy of the Imperial War Museum

EG:020-L7-P7

Japanese forces land on the beach at Kavieng, New Ireland, January 1942.
Courtesy of the National Archives

EG:020-L8-P8

Japanese troops march through Fullerton Square, Singapore, February 1942.
Courtesy of the Imperial War Museum

EG:020-L9-P9

Lt. Gen. Tomoyuki Yamashita receives the British surrender from Lt. Gen. A. E. Percival at Singapore, February 15, 1942.
Courtesy of the Imperial War Museum

EG:020-L10-P10

U.S. soldiers instruct Filipino guardsmen prior to the fall of Corregidor, May 1942.
Courtesy of the National Archives

EG:020-L11-P11
[label deleted]

EG:020-L11c-P11c
Will replace or supplement L11

Japanese army troops celebrate the capture of Mt. Limay on Bataan with a "Banzai" salute, April 1942.
Courtesy of the National Archives

EG:020-L11a
Subtitle

THE BATAAN DEATH MARCH

EG:020-L11b
Text

THE FALL OF THE PHILIPPINES

Almost simultaneously with the attack on Pearl Harbor, the Japanese invaded the Philippine Islands. The American garrison and the Philippine army were woefully unprepared to defend against the Japanese onslaught. By January 2, 1942, Manila had fallen and the American and Philippine defenders were retreating to the Bataan Peninsula. By April 8, most of the Bataan defenders had surrendered, while some had retreated to the island fortress of Corregidor in Manila Bay. On May 6, Corredigor also surrendered.

The Japanese were brutal toward the American and Filipino soldiers captured at Bataan. Already short of rations and given little or no food and water, the prisoners were forced to march 104 kilometers (65 miles) to an internment camp, a trip that took up to two weeks. More than 600 Americans and 5,000 to 10,000 Filipinos perished during what became known as the March of Death. Of almost 20,000 Americans captured during the fall of the Philippines, over 40 percent would never return.

EG:020-L12-P12

Treated by their captors with a mixture of contempt and cruelty, American prisoners await their fate during the Bataan Death March.
Courtesy of the National Archives

EG:020-L13-P13

American prisoners are guarded by a Japanese soldier during a rest break on the trek from Bataan, April 1942.
Courtesy of the National Archives

EG:020-L14-P14

American dead during the Bataan Death March.
Courtesy of the National Archives

EG:020-L15
Subtitle

THE TIDE BEGINS TO TURN

EG:020-L16
Text

THE ALLIES STRIKE BACK

Even the desperate early days of the Pacific war offered reasons for hope. A small group of American volunteer airmen under Col. Claire Chennault provided aerial support for the Chinese. Another group of Army Air Forces airmen, led by Lt. Col. Jimmy Doolittle, conducted a B-25 raid from the carrier Hornet and bombed four Japanese cities, including Tokyo, demonstrating that Japanese cities were not immune to attack.

While the Philippines and Burma were falling, a new era in naval warfare was beginning in the Coral Sea, where for the first time a sea battle was fought solely by aircraft. In June 1942 near Midway Island, Japanese naval forces, attempting to annihilate the U.S. Navy, suffered a major defeat, losing four aircraft carriers in an action that turned the tide of the war in the Pacific.

EG:020-L17-P17

Maj. Gen. Claire L. Chennault, leader of the "Flying Tigers" of the American Volunteer Group and later of the Fourteenth Air Force in China. An exhibit on the Flying Tigers can be found in World War II Aviation (Gallery 205) upstairs.

EG:020-L18-P18

On April 18, 1942, 16 B-25 bombers led by Lt. Col. James H. Doolittle took off from the carrier USS Hornet to bomb the Japanese homeland for the first time.
Courtesy of the U.S. Air Force

EG:020-L19-P19

The Japanese captured eight of the Doolittle raiders and executed three. This pilot survived 40 months of solitary confinement.
Courtesy of the U.S. Air Force

EG:020-L20-P20

The Japanese aircraft carrier Shoho being torpedoed in the Battle of the Coral Sea, May 7, 1942.
Courtesy of the U.S. Navy

EG:020-L21-P21

Attack aircraft land on the USS Lexington, which was severely damaged and eventually lost during the Battle of the Coral Sea, May 7, 1942.
Courtesy of the National Archives

EG:020-L22-P22

A fire-fighting detail works through a pall of smoke aboard the USS Yorktown, which was lost at the Battle of Midway, June 1942.
Courtesy of the U.S. Navy

EG:020-L23-P23

A memorial service held for U.S. servicemen killed during the Battle of Midway.
Courtesy of the U.S. Naval Institute

EG:030-L1
Title

THE ALLIES ON THE OFFENSE

EG:030-L2
Text

THE APPROACHES TO RABAUL

The U.S. victory at Midway in June 1942 gave the Allies the opportunity to launch a limited offensive aimed at blocking the Japanese advance in the south and southwest Pacific. The growing Japanese base at Rabaul on New Britain, a likely starting point for future enemy offensives, became the objective.

The Allies advanced against Japanese positions along two lines converging at Rabaul. One offensive began at Guadalcanal and moved up the Solomon chain toward the Bismarck Archipelago. The other moved along the north coasts of Papua and New Guinea, isolating Rabaul.

The 20-month campaign decimated Japanese air and sea power in the southwest Pacific. Allied forced bypassed and neutralized more than 125,000 enemy troops, and complimented the United States' drive across the central Pacific in 1944.

EG:030-L3
Subtitle

THE SOLOMON ISLANDS

EG:030-L4
Text

THE ISLAND WAR BEGINS

Alarmed by Japanese efforts to construct an airfield on Guadalcanal in the Solomons, Adm. Chester Nimitz and his staff accelerated plans for an offensive. The Marines landed on the island on August 7, 1942, ill-prepared to face a tenacious enemy whose tactics and battle ethics were utterly foreign to them. They fought fierce battles day and night in terrain ranging from rain forests and swamps to kunai-grass flats and mountains, and were subjected without relief to months of pounding by the enemy.

Meanwhile, a series of desperate air and naval battles ensued in the Solomons as the Allies fought for control of the sea and sky. Allied naval forces suffered a major defeat during the Battle of Savo Island on August 9, when four Allied heavy cruisers and a thousand men were lost.

But by February 9, 1943, Guadalcanal was in Allied hands. In the following months, the Allies moved steadily northwest through the Solomons, seizing bases, bypassing or outflanking Japanese strong points, and building new airstrips to extend the reach of Army Air Forces bombers.

EG:030-L4a-P4a
Map of Solomon Islands and New Guinea.
[no caption]

EG:030-L5-P5

A U.S. Navy warship approaches the beach at Guadalcanal during an air attack by Japanese bombers in the fall of 1942.
Courtesy of the U.S. Naval Institute

EG:030-L6-P6

A Marine scouting patrol wades across one of the island's many shallow rivers, breeding areas for swarms of mosquitoes. Most of the Marines and soldiers contracted malaria or other tropical diseases during the months of fighting.
Courtesy of the U.S. Naval Institute

EG:030-L7-P7
[not used]

EG:030-L8

"Too often his tenacity was without point, and his Banzai charges, which never in the course of the war achieved any results of importance, seemed plain silly. In his willingness to die, he frequently let death become an end in itself."
Frank O. Hough, The Island War: The United States Marine Corps in the Pacific

EG:030-L9-P9

Under the watchful eye of a lookout, Marines enjoy a rare break in the daily routine of jungle fighting on Guadalcanal.
Courtesy of the U.S. Naval Institute

EG:030-L10-P10a,b

Crucial to the victory at Guadalcanal was the air superiority gained by Allied pilots flying from the island's Henderson Field (left). Invaluable assistance was also provided by heroic Australian "coastwatchers," such as Capt. Martin Clements. Assisted by native islanders, they radioed information to the Allies on the movements of Japanese forces from hidden observation posts behind enemy lines throughout the Solomon Islands.
Courtesy of the U.S. Naval Institute

EG:030-L11-P11

Japanese bombers attack a U.S. carrier through a heavy barrage of antiaircraft fire during the Battle of the Santa Cruz Islands, October 26, 1942. The two carrier battles of Santa Cruz and the Eastern Solomons proved critical to the Allied victory at Guadalcanal.
Courtesy of the U.S. Naval Institute

EG:030-L12-P12

Gen. George C. Kenney, commander of the Army Air Forces, Fifth Air Force, and a brilliant leader and tactician. Between March and November 1943 his forces gained total air superiority over the skies of New Guinea and ended the Japanese effort to reinforce their troops by sea.
Courtesy of the U.S. Air Force

EG:030-L13-P13

A camouflaged Japanese ship comes under attack by Allied bombers flying at masthead height during the Battle of the Bismarck Sea.
Courtesy of the U.S. Naval Institute

EG:030-L13a-P13a

Adm. Isoroku Yamamoto, commander-in-chief of the Japanese navy, planned the attack on Pearl Harbor and the Battle of Midway. He was killed when Army Air Forces P-38 Lightnings shot down the airplane he was aboard near Bougainville on April 18, 1943.
Courtesy of the U.S. Navy

EG:030-L14-P14

A U.S. Army Air Forces P-40 flies at treetop level over American troops landing on Rendova Island in the central Solomons, June 30, 1943.
Courtesy of the U.S. Naval Institute

EG:030-L15-P15

American troops take cover during the landing on Rendova, June 1943. The Japanese defenders withdrew inland to harass the G.I.s from the hills and swamps.
Courtesy of the U.S. Naval Institute

EG:030-L16-P16

A valuable addition to the Allied forces in the Pacific, these Fijian soldiers, from the First Fiji Infantry, man a camouflaged machine gun emplacement on the island of New Georgia, July 1943.
Courtesy of the U.S. Naval Institute

EG:030-L17-P17

Fighter Squadron 17, known as "Blackburn's Irregulars," was the Navy's first operational F4U Corsair squadron. While based on New Georgia, the squadron claimed 154 Japanese aircraft in 79 days of combat, producing 12 aces (pilots with five or more victories).
Courtesy of the National Archives

EG:030-L18-P18

A U.S. Navy destroyer, its wake reflecting the firing of other ships astern, fires on Japanese aircraft during operations off Vella Lavella in the central Solomons, August 1943.
Courtesy of the U.S. Naval Institute

EG:030-L19-P19

A wounded airman is lifted from the turret of his Grumman TBF Avenger on the USS Saratoga following a raid on Rabaul, November 1943.
Courtesy of the U.S. Navy

EG:030-L20-P20

B-26s bomb camouflaged Japanese barges on New Britain. The shadows of the attacking aircraft are visible on the thick jungle canopy.
Courtesy of the U.S. Air Force

EG:030-L21-P21

Japanese bombers and fighters are destroyed on the ground by white phosphorous incendiary bombs during an Army Air Forces raid on Lakunai Airfield, Rabaul.
Courtesy of the U.S. Air Force

EG:030-L22-P22

The U.S. Navy Seabees built the roads that enabled Allied ground forces to move on the battlefield and the runways that enabled Allied airpower to reach Japan.
Courtesy of the U.S.Navy

EG:030-L23-P23

Landing operations during the attack on Mono Island in the Solomons.
Courtesy of the U.S. Naval Institute

EG:030-L24-P24

Two Marines at the grave of a fallen comrade during the heavy fighting in the jungles of the central Solomons.
Courtesy of the National Archives

EG:030-L25-P25

A burial party prepares graves for fellow Marines who died during the battle on Bougainville. The fight cost the Marines 423 dead and 1,418 wounded.
Courtesy of the National Archives

EG:030-L26-P26
[not used]

EG:030-L27
Subtitle

NEW GUINEA

EG:030-L28
Text

MacARTHUR BEGINS HIS RETURN TO THE PHILIPPINES

Gen. Douglas MacArthur, leading the Allied effort in the southwest Pacific, began his offensive on New Guinea in November 1942. The world's second largest island, New Guinea became the scene of ferocious battles. Dense tracts of rain forest and mangrove swamps made troop movements extremely difficult, and the Allies had to battle tropical diseases and dysentery while fighting the Japanese.

By February 1944, the Allies had bypassed and isolated the Japanese stronghold at Rabaul, and the Japanese fleet had withdrawn to Palau. With the capture of the Admiralty Islands, the Army Air Forces had a forward air base that extended their fighter range and allowed them to carry out bombing raids against Japanese bases on New Guinea.

By May 1944, a series of unprecedented "island-hopping" maneuvers involving seaborne envelopments and amphibious landings had enabled the Allies to advance 2,100 kilometers (1,300 miles) in only 100 days, bringing MacArthur ever closer to his goal of retaking the Philippines.

EG:030-L29-P29

Australian soldiers land at Lae, New Guinea, September 5, 1943. During 1943, the Allies suffered more than 24,000 casualties on New Guinea, of which nearly 70 percent were Australian.
Courtesy of the National Archives

EG:030-L30-P30

Australian troops are airlifted into New Guinea aboard a Douglas C-47, September 11, 1943.
Courtesy of the U.S. Air Force

EG:030-L31-P31

Members of the Women's Army Corps disembark from their plane on New Guinea, 1944.
Courtesy of the U.S. Air Force photo

EG:030-L32-P32

North American B-25 Mitchell bombers attack a Japanese air strip on New Guinea with fragmentation bombs dropped by parachute, February 3, 1944.
Courtesy of the U.S. Air Force

EG:030-L33-P33a,b,c

During an attack on Japanese fortifications in New Guinea, a Douglas A-20 Havoc is hit by flak, swerves out of control, and falls from the sky.
Courtesy of the U.S. Air Force

EG:030-L34-P34

Apprehensive Army troops in a Coast Guard landing craft, moments before hitting the beach at Aitape, New Guinea, April 1944.
Courtesy of the U.S. Coast Guard

EG:030-L35-P35

Army troops under fire as they come ashore at Wakde Island, New Guinea, May 16, 1944. During the latter phase of the battle for New Guinea, the Americans suffered 9,500 casualties.
Courtesy of the U.S. Naval Institute

EG:030-L36-P36

Soldiers wade knee-deep in water near Hollandia, New Guinea, April 1944.
Courtesy of the U.S. Naval Institute

EG:030-L37-P37

A B-25 Mitchell bombs a Japanese ship at Wewak, New Guinea, April 1944.
Courtesy of the U.S. Air Force

EG:030-L38-P38

A Coast Guard photographer captures stretcher bearers heading down the ramps and into the surf during the invasion of Sarmi, New Guinea, May 1944.
Courtesy of the U.S. Coast Guard

EG:030-L39-P39

Wounded soldiers being moved back to their ships during the invasion of Dutch New Guinea, May 1944.
Courtesy of the National Archives

EG:030-L40-P40

B-25s bomb Japanese fortifications at Dobo, Dutch New Guinea, May 26, 1944.
Courtesy of the U.S. Air Force

EG:030-L41-P41a,b,c

U.S. Army paratroopers ready to jump and descending over Noemfoor Island, New Guinea, July 1944. Everything did not always go as planned.
Courtesy of the U.S. Air Force

EG:030-L42-P42

Columns of Coast Guard landing craft packed with troops head for Cape Sansapor, New Guinea, July 1944.
Courtesy of the U.S. Coast Guard

EG:040-L1
Main Title

THE CENTRAL PACIFIC DRIVE

EG:040-L2
Main Text

THE DUAL ADVANCE TOWARD THE PHILIPPINES

The Allied plan for defeating Japan developed in May 1943 called for ejecting Japanese forces from the Aleutian Islands in Alaska (occupied during the Midway campaign) and executing a two-pronged campaign through the Pacific.

One force, commanded by Adm. Chester W. Nimitz, would advance westward from Pearl Harbor through the central Pacific. Another, led by Gen. Douglas MacArthur, would continue its offensive through the south and southwest Pacific and drive westward along the coast of New Guinea. The two forces would join in the western Pacific in 1944 for an invasion of the Philippines.

The drive through the hundreds of small islands and atolls of the central Pacific was considered vital to the plan for defeating Japan. The main combat arm of the central Pacific drive was the U.S. Fifth Fleet, spearheaded by the Fast Carrier Task Force, whose mission was to support amphibious operations with long-range strikes by carrier-based aircraft.

EG:040-L3-P3
Map of central and southwest Pacific.
[no caption]

EG:040-L4 and L5
[not used]

EG:040-L6-P6

Part of the U.S. Pacific Fleet at rest, Ulithi anchorage, Caroline Islands. The Allied military offensives that began in 1943 were made possible by the unmatched productive might of U.S. industry. The delivery of fleets of new ships, thousands of new and improved aircraft, virtually unlimited amounts of munitions, and an entire arsenal of new weapons continued without interruption until the end of the war.
Courtesy of the U.S. Naval Institute

EG:L7 through L20
[not used]

EG:040-L21
Subtitle

THE GILBERTS AND THE MARSHALLS

EG:040-L22
Text

THE OPENING MOVES

The invasion of the Gilbert Islands, the first objective of the central Pacific drive, began in November 1943 with an assault by Marines and Army troops on Makin atoll and heavily fortified Tarawa atoll. The bloody attack on Tarawa revealed serious flaws in U.S. amphibious warfare planning. Thereafter, prolonged aerial bombing and bombardment with armor-piercing shells would be used to knock out enemy positions before launching an amphibious assault.

After the Gilberts fell, U.S forces focused on the Marshall Islands. Army and Marine troops invaded and secured Kwajalein and Eniwetok atolls in February 1944. After the shock of Tarawa, the nearly perfect assault on Kwajalein set the pattern for the rest of the central Pacific invasions.

The Japanese withdrew to the Marianas, leaving as an outpost the island of Truk in the Carolines. The "Gibraltar of the Pacific" was supposedly impregnable to attack, but was revealed to be a hollow fortress. During two days in February 1944, carrier-based planes hit Truk repeatedly, destroying about 200 aircraft and sinking or damaging many ships.

EG:040-L23-P23
Map.
[no caption]

EG:040-L24-P24

The battleship USS Maryland shells the island of Betio in the Tarawa Atoll during the pre-invasion bombardment, November 20, 1943.
Courtesy of the U.S. Naval Institute

EG:040-L25-P25

Four U.S. Marines were awarded the Medal of Honor for valor during the fierce fighting for Tarawa, in which 1,100 Marines were killed and almost 2,300 wounded.
Courtesy of the U.S. Naval Institute

EG:040-L26-P26

Despite fierce resistance and heavy casualties, Marines begin climbing the seawall at Betio to clean out enemy pillboxes and shelters.
Courtesy of the U.S. Naval Institute

EG:040-L27-P27

Marines advance along the invasion beach on Betio.
Courtesy of the U.S. Naval Institute

EG:040-L28-P28

A Marine takes a break during a lull in the fighting on Betio.
Courtesy of the U.S. Naval Institute

EG:040-L29-P29

A Marine wounded on Namur Island, Kwajalein Atoll, February 1944.
Courtesy of the U.S. Naval Institute

EG:040-L30-P30

Marines relax on a Coast Guard|manned transport after the February 1944 assault on Eniwetok, which cost the Americans 348 dead and 866 wounded. Coast Guardsmen participated in every major amphibious landing of World War II.
Courtesy of the U.S. Naval Institute

EG:040-L31-P31

Japanese ships in Truk harbor trying to escape attack by U.S. warplanes, February 16, 1944.
Courtesy of the U.S. Naval Institute

EG:040-L31a-P31a

Aircraft carrier crewmen take a swim in a lagoon in the Marshalls a few days after the battle for Kwajalein.
Courtesy of the U.S. Naval Institute

EG:040-L32
Subtitle

THE MARIANAS AND THE PALAUS

EG:040-L33
Text

THE THOUSAND-MILE LEAP

With the Gilberts and Marshalls secure, the Allies bypassed Truk and the Carolines and converged on Saipan, Tinian, and Guam in the Marianas. Some 1,600 kilometers (1,000 miles) from the nearest U.S. anchorage, Allied forces stormed ashore on Saipan on June 15, 1944.

By mid-July organized resistance on Saipan had ended; Tinian and Guam soon fell as well. At the cost of more than 5,000 lives, the U.S. gained bases that would allow increased submarine operations against Japanese commerce and the launching of B-29 raids against Japan.

As a prelude to the invasion of the Philippines, Adm. William F. Halsey's Third Fleet assaulted the islands of Angour and Peleliu in the Palaus. The assault on 6.5-kilometer (4-mile) long Peleliu, heavily fortified and honeycombed with hundreds of caves, cost the U.S. the highest combat casualty rate of any amphibious assault in American history.

EG:040-L34-P34
Map.
[no caption]

EG:040-L35
Subtitle

THE JAPANESE ATTITUDE TOWARD SURRENDER

The battle for Saipan marked the first time Americans invaded an island inhabited by Japanese civilians. During the bitter fighting, the refusal of enemy troops to surrender, resulting in the loss of almost 30,000 Japanese.

The reasons for such behavior could be traced to the Japanese belief in the ideals of Bushido, an ancient code of conduct that Prime Minister Hideki Tojo had incorporated into the Japanese military code in 1941. The new code stated that Japanese should resist being taken prisoner and should kill themselves if captured. As the tide of the war turned against Japan, Tojo commanded Japanese troops to "die but never surrender," and to accept "death before dishonor." Wounded Japanese soldiers often killed themselves and the Allies who tried to help them.

This code of conduct made it difficult for the Japanese to understand the more lenient American attitude toward surrender and affected how they treated prisoners of war. It also explains why so few Japanese were captured during the war.

EG:040-L36
[not used]

EG:040-L37-P37

The Japanese fleet under attack by dive bombers and torpedo planes of the Fifth Fleet during the Battle of the Philippine Sea, June 20, 1944.
Courtesy of the U.S. Naval Institute

EG:040-L38-P38

After two days of intense bombardment and air strikes against Saipan, landing craft full of U.S. Marines head for the beach, June 15, 1944.
Courtesy of the U.S. Naval Institute

EG:040-L39-P39

The first wave of Marines storm the beach on Saipan under intense enemy fire.
Courtesy of the U.S. Naval Institute

EG:040-L40-P40

A Marine rifleman shakes the sand from his shoes during a lull in the fighting on Saipan, June 1944.
Courtesy of the U.S. Naval Institute

EG:040-L41-P41

The invasion of Saipan cost 16,500 American casualties, including 3,400 killed.
Courtesy of the U.S. Naval Institute

EG:040-L42-P42

Survivors of the fighting on Saipan, June 1944.
Courtesy of the U.S. Naval Institute

EG:040-L43-P43

Supported by Admiral Halsey's Third Fleet, waves of amphibious landing craft begin the assault on Peleliu, September 15, 1944.
Courtesy of the U.S. Naval Institute

EG:040-L44-P44

This bandaged Marine demolition man was hit by Japanese sniper fire while trying to blow up a pillbox on Peleliu.
Courtesy of the U.S. Naval Institute

EG:040-L45-P45

American dead, Peleliu, September 1944. The Marines and Army suffered about 9,800 casualties, including about 1,800 dead. Only 301 of 10,695 Japanese surrendered.
Courtesy of the U.S. Naval Institute

EG:040-L46-P46

This Marine fought in the battle for Peleliu, during which eight of his comrades were awarded the Medal of Honor.
Courtesy of the U.S. Naval Institute

EG:040-L47
Subtitle

THE PHILIPPINES

EG:040-L48
Text

"OUR FORCES STAND AGAIN ON PHILIPPINE SOIL"
--Gen. Douglas MacArthur

By the end of summer 1944, with General MacArthur's conquest of New Guinea and Admiral Nimitz's central Pacific drive essentially complete, the two forces prepared for the invasion of the Philippines. From air bases in the south and central Pacific, western China, and New Guinea, and from the Third Fleet at sea, Allied air and sea power pounded Japanese installations and shipping to isolate the island of Leyte in the central Philippines. On October 20, 1944, 60,000 Allied troops landed on the beaches of Leyte.

Meanwhile at sea, three separate Japanese naval forces converged on the area, and in October 1944 the largest sea battle of all time ensued--the Battle of Leyte Gulf. The Japanese suffered a crushing defeat.

EG:040-L49-P49
Map of Philippines.
[no caption]

EG:040-L49a-P49a

Key to the mobility of the carrier task forces was the periodic replenishment of fuel, supplies, and ordnance at sea.
Courtesy of the U.S. Naval Institute

EG:040-L50-P50

President Franklin D. Roosevelt discusses the forthcoming invasion of the Philippines with (left to right) Gen. Douglas MacArthur, Commander, Allied Forces, Southwest Pacific; Adm. Chester W. Nimitz, Commander in Chief, U.S. Pacific Fleet; and Adm. William D. Leahy, Chief of Staff to the President; Hawaii, July 27, 1944.
Courtesy of the U.S. Naval Institute

EG:040-L51-P51

On October 20, 1944, Gen. Douglas MacArthur waded ashore on Leyte to announce to the people of the Philippines, "By the grace of Almighty God, our forces stand again on Philippine soil--soil consecrated in the blood of our two peoples."
Courtesy of the U.S. Naval Institute

EG:040-L52-P52

An Army truck rolls down the ramp of a Coast Guard|manned landing ship onto Leyte.
Courtesy of the U.S. Naval Institute

EG:040-L53-P53

Three Japanese soldiers killed in the fighting for Leyte.
Courtesy of the U.S. Naval Institute

EG:040-L54-P54

A Coast Guardsman attends to a soldier wounded by shrapnel on Leyte.
Courtesy of the U.S. Naval Institute

EG:040-L55-P55,P55a

Adm. William F. Halsey Jr., Commander, Third Fleet (left), and Vice Adm. Marc A. Mitscher, Commander, Task Force 38 (right), victors of the Battle of Leyte Gulf.
Courtesy of the U.S. Naval Institute

EG:040-L56-P56

The Japanese aircraft carrier Zuiho, sunk by Third Fleet carrier planes on October 25, 1944, during the Battle of Leyte Gulf.
Courtesy of the U.S. Naval Institute

EG:040-L57-P57

A U.S. escort carrier is shelled by enemy cruisers and battleships in Leyte Gulf, October 25, 1994.
Courtesy of the U.S. Naval Institute

EG:040-L57a-P57a

During action off the coast of Japan, the crew of an aircraft carrier uses foamite to prevent fire from spreading on the hangar deck.
Courtesy of the U.S. Naval Institute

EG:040-L57b-P57b

Fighter pilots relax in a ready room before flight operations aboard an aircraft carrier.
Courtesy of the U.S. Naval Institute

EG:040-L58-P58

The first wave of American troops sweep through the waters of Lingayen Gulf towards the beaches of Luzon in the Philippines, January 9, 1945.
Courtesy of the U.S. Naval Institute

EG:040-L59-P59

Army Air Forces B-25s attack Clark Field on Luzon, 1945.

EG:040-L60-P60

Army Air Forces P-38 fighter-bombers napalm Japanese installations near Ipo Dam, Luzon, 1945.

EG:040-L61-P61a,b

While the Allies lay siege to Manila from February 3 to March 3, Japanese troops systematically destroyed the city and slaughtered about 100,000 civilians out of a population of 1 million. Men, women, and children alike were burned to death, blown up, bayoneted, shot, or beheaded in their homes, hospitals, churches, schools, and streets.

EG:040-L63
Subtitle

THE LIBERATION OF THE PHILIPPINES

The defeat of the Japanese navy in the Battle of Leyte Gulf did not alter the basic Japanese plan to fight to the finish in the Philippines. But despite fierce resistance on land, and the onslaught of kamikazes against U.S. warships at sea, General MacArthur declared on Christmas day 1944 that all organized resistance on Leyte had ended.

Within weeks, Luzon was invaded, Corregidor was back in Allied hands, and Manila had fallen. Still ahead lay the bitterly fought campaigns for Iwo Jima and Okinawa. Meanwhile in Europe, the British, American, and French drove into Germany from the west, while the Soviets closed in from the east. Finally, on May 8, 1945, World War II officially ended in Europe. At the same time, the Pacific war entered its final phases.

EG:050-L1
Main Title

THE GRUMMAN F6F HELLCAT

EG:050-L2
Text

On August 31, 1943, the Hellcat flew in combat for the first time, operating from the decks of the USS Yorktown and USS Essex in attacks against Japanese installations on Marcus Island in the Pacific. During the next two years, it became the premier carrier-based fighter of the war, destroying over 5,100 enemy aircraft in aerial combat. Almost 75 percent of all the U.S. Navy's air-to-air victories were achieved by the F6F, which attained an unsurpassed record of 19 enemy aircraft destroyed for each F6F lost.

In just three years of production 12,275 Hellcats were built, with the basic model undergoing remarkably few design changes. The F6F-3 and -5 models were the principal combat versions, with radar-equipped F6F-3E, -3N, and -5N models also flown in the Pacific by U.S. Navy and Marine Corps night-fighter squadrons.

EG:050-L3
Specifications block

GRUMMAN F6F-5 HELLCAT

Wingspan:	13.0 m (42 ft 10 in)
Length:	10.2 m (33 ft 7 in)
Height:	4.4 m (14 ft 5 in)
Weight, empty:	4,182 kg (9,212 lb)
Weight, gross:	5,780 kg (12,730 lb)
Armament:	Six .50 cal machine guns
Top speed:	594 km/h (371 mph) at 6,000 m (20,000 ft)
Ceiling:	11,190 m (36,700 ft)
Engine:	Pratt & Whitney 2,000-hp R-2800-10W
Manufacturer:	Grumman Aircraft Engineering Corp, Bethpage, Long Island, N.Y.

EG:050-L4

A RUGGED, VERSATILE COMBAT AIRCRAFT

The Hellcat bore a family resemblance to its predecessor, the Grumman F4F Wildcat, one of which is in Sea-Air Operations (Gallery 203). However, the Hellcat was bigger and heavier. and its more powerful engine allowed it to outperform its main adversary, the Mitsubishi A6M Zero. The Hellcat provided excellent visibility and armor protection for its pilot. Its self-sealing fuel tanks and rugged construction enabled it to withstand considerable damage and still bring its pilot safely back to his ship.

To combat the kamikaze threat in 1944|45, carriers began carrying more fighters and fewer bombers. The Hellcat helped offset the decrease in bombers, since it could carry 900 kilograms (2,000 pounds) of bombs under its fuselage and six air-to-ground rockets under its wings.

In the air the Hellcat was a stable, "forgiving," and dependable airplane. Aboard ship, it was relatively easy to maintain--it consistently had a 90 percent in-service rate. Its folding wing design almost doubled the number of Hellcats that could be stored on board a carrier.

EG:050-L5-P5

A Hellcat pilot moments away from a ride down the starboard catapult. Two hydraulic catapults on the bow of the aircraft carrier could accelerate heavily loaded aircraft to speeds of up to 160 kilometers (100 miles) per hour.
Courtesy of the U.S. Naval Institute

EG:050-L6-P6

The arresting hook of a Hellcat snags one of the many steel arresting wires on the aft end of the ship.
Courtesy of the U.S. Naval Institute

EG:050-L7-P7

Immediately after the pilot taxied clear of the landing area, the wings were unlocked, and flight deck crewmen helped fold them back.
Courtesy of the U.S. Naval Institute

EG:050-L8-P8

The external fuel tank of this F6F-3 ruptured on landing aboard the USS Lexington, and flames engulfed the aircraft. The pilot released his safety belt and escaped over the wing.
Courtesy of the U.S. Naval Institute

EG:050-L9-P9

Accidents during carrier landings, often due to a wounded pilot or a damaged aircraft, were not unusual. The Hellcat was remarkably rugged, often making it back aboard ship despite extensive damage.
Courtesy of the U.S. Naval Institute

EG:050-L10

THE HELLCAT IN COMBAT

Although shooting down enemy airplanes was the Hellcat's principal mission, other duties evolved as its capabilities were tested in battle and Japanese aerial warfare tactics changed. Hellcat pilots escorted mass formations of carrier bombers in attacks against targets heavily defended by enemy fighters, often without losing a single bomber.

Other missions included fighter sweeps to catch enemy aircraft on the ground, patrols to spot approaching enemy aircraft, long-range searches for Japanese ships, ground-support operations against invasion beaches, and night fighting and photo reconnaissance.

EG:050-L11-P11

The Mitsubishi A6M Reisen (Zero) was the main fighter of the Japanese navy. The Zero, or "Zeke," outperformed all types of Allied fighters early in the war. But it was no match for newer fighters, such as the Hellcat and Corsair, which were numerically and technologically superior and flown by better-trained pilots. A Zero is displayed in World War II Aviation (Gallery 205) upstairs.

EG:050-L12
[not used]

EG:050-L13-P13

An F6F-3 pilot launches from the USS Yorktown on June 19, 1944, on his way to what was later dubbed the "Marianas Turkey Shoot," the biggest one-day air battle in history.
Courtesy of the U.S. Naval Institute

EG:050-L14-P14

The light carrier Monterey (foreground) and the Wasp (background) come under attack by Japanese aircraft during the U.S. invasion of the Marianas, June-July 1944.
Courtesy of the U.S. Naval Institute

EG:050-L15-P15

A jubilant Alex Vraciu destroyed six Japanese dive bombers in eight minutes during the "Marianas Turkey Shoot" to become the highest ranking Navy ace at the time with 18 victories. The Japanese lost about 325 aircraft that day.
Courtesy of the U.S. Naval Institute

EG:050-L16-P16

Part of a U.S Navy task force of 116 warships, including 16 carriers, steams towards a position 96 kilometers (60 miles) off the coast of Honshu, the largest island of Japan, February 16|17, 1945. During two days of combat off Japan, Hellcats destroyed over 300 enemy planes. Not one U.S. ship was attacked.
Courtesy of the U.S. Naval Institute

EG:050-L17-P17

The super-dreadnought Yamato was intercepted on April 7, 1945, by Navy Hellcats and carrier bombers as it headed for a one-way suicide mission against the U.S armada at Okinawa. After many bomb and torpedo hits, the giant battleship listed heavily and sank, carrying with it almost 2,500 officers and men.
Courtesy of the U.S. Naval Institute

EG:099-L1

"TODAY IS V-E DAY"

May 8, 1945, was "Victory in Europe Day." Allied soldiers, sailors, and airmen had brought the European war to a close by forcing complete and unconditional surrender on the Third Reich. They had won total victory in a just cause.

For one moment the Allies could celebrate--but the war was not over. In the Pacific, the battle with Japan was becoming increasingly bitter. Allied losses continued to mount. It seemed quite possible that the fighting could go on into late 1946 with great loss of life. Unbeknownst to all but a small number of military and civilian decision-makers and scientists, however, the U.S. and its allies were preparing a revolutionary new weapon: the atomic bomb. As a result, the Pacific war would end abruptly, in a way that few could anticipate on V-E Day.

EG:099-L1a-P1a
"Today is V-E Day" headline, plus a montage of newspaper front pages.
No captions needed.

EG:099-L1b-P1b

New Yorkers toast the victory in Times Square.
Courtesy of the National Archives

EG:099-L1c-P1c

Concentration camp inmates at Buchenwald with their American liberators.
Courtesy of the National Archives

EG:099-L1d-P1d

German soldiers are marched into captivity, (more details needed).
Courtesy of the National Archives

EG:100-L1
main unit title

A FIGHT TO THE FINISH

EG:100-L3a-s, P3a-s
[NOTE: These photographs and labels have been incorporated into section EG:000.]

EG:110-L1
main title

COMBAT IN THE PACIFIC

EG:110-L2
main text

As the Pacific war entered its climactic stage during the first half of 1945, the fighting reached unprecedented levels of ferocity and destructiveness. To many on the Allied side, the suicidal resistance of the Japanese military called for drastic measures. The appalling numbers of casualties suffered by both sides seemed to foreshadow what could be expected during an invasion of Japan.

EG:110-L2a-P2a

Marines raise the flag on Mt. Suribachi, Iwo Jima, February 1945.
Courtesy of the National Archives

EG:111-L1

THE STRATEGIC SITUATION, SPRING 1945

By the time Germany surrendered, the Allies had reversed Japan's dramatic 1941-42 sweep through the Pacific and Southeast Asia. U.S. forces had advanced through the southwestern Pacific and had recaptured most of the Philippine Islands. The U.S. Pacific Fleet had destroyed most of the Japanese navy, blockaded Japan with submarines, and cut off or captured most of Japan's southern and central Pacific island outposts. British forces had advanced deep into Burma.

Although resistance continued in the Philippines, and Japanese armies remained intact in Southeast Asia, China, and Manchuria, the Allies began to execute their strategy for the final defeat of the Japanese empire. The cost proved shockingly high, however, as Japanese forces used suicidal tactics in the air and on the ground to defend islands close to their homeland.

EG:111-L1a-P1a
Map needed

The Pacific theater, spring 1945.

EG:112-L1

NO HOLDS BARRED: IWO JIMA AND OKINAWA

American war plans for the first half of 1945 centered on capturing the islands of Luzon, Iwo Jima, and Okinawa and intensifying the bombing campaign against Japan. Iwo Jima was chosen to provide an emergency airfield for B-29s returning from raids on Japan. Okinawa, only 640 kilometers (400 miles) from the southern tip of the main Japanese islands, was chosen to provide a base for an invasion of those islands.

Both Iwo Jima and Okinawa became costly battles of attrition taking weeks longer than expected. By the time the fighting ended, total U.S. casualties in the Pacific for the first half of 1945 had exceeded those suffered during the previous three years combined. To those in combat, Iwo Jima and Okinawa represented an ominous warning of what could lie ahead in an invasion of Japan, where the entire population would be involved.

EG:112-L1a-P1a
Map/photograph of Iwo Jima needed.

EG:112-L1b-P1b
Map/photograph of Okinawa needed.

EG:112-L2
The free-floating quotations that follow will be distributed throughout the section on the Pacific war

A MARINE'S WAR

Eugene B. Sledge, a college freshman from Montgomery, Alabama, enlisted in the U.S. Marine Corps on December 3, 1942. He served with Company K, 3rd Battalion, 5th Marines. Sledge's memoir of combat in the Pacific, With the Old Breed at Peleliu and Okinawa, offers rare insight into the experience of a combat infantryman. The veteran Marine survived the war, returned to college and became a university professor.

EG:112-L2a

"The corpsman was on his knees bending over a young Marine who had just died on a stretcher. A blood-soaked battle-dressing was on the side of the dead man's neck. His fine, handsome, boyish face was ashen. "What a pitiful waste," I thought. "He can't be a day over seventeen years old." I thanked God his mother could not see him. The corpsman held the dead Marine's chin tenderly between the thumb and fingers of his left hand and made the sign of the cross with his right hand. Tears streamed down his dusty, tanned, grief-contorted face while he sobbed quietly."
E. B. Sledge, 1st Marine Division, describing a scene on the island of Peleliu, 1944

EG:112-L2b

"In a shallow defilade to our right...lay about twenty dead Marines, each on a stretcher and covered to his ankles with a poncho--a commonplace, albeit tragic, scene to every veteran.... I saw that other Marine dead couldn't be tended to properly.... Every crater was half full of water, and many of them held a Marine corpse. The bodies lay pathetically just as they had been killed, half submerged in muck and water, rusting weapons still in hand. Swarms of big flies hovered about them."
E. B. Sledge, 1st Marine Division, describing a scene on Okinawa, 1945

EG:112-L2c

"The combat fatigue cases were distressing. They ranged in their reaction from a state of dull detachment seemingly unaware of their surroundings, to quiet sobbing, or all the way to wild screaming and shouting. Stress was the essential factor we had to cope with in combat, under small-arms fire, and in warding off infiltrators and raiders during sleepless, rainy nights for prolonged periods; but being shelled so frequently...seemed to increase the strain beyond that which many otherwise stable and hardened Marines could endure without mental or physical collapse."
E. B. Sledge, 1st Marine Division, describing the fighting on Okinawa, 1945

EG:112-L2d

"It was common throughout the campaign for replacements to get hit before we even knew their names. They came up confused, frightened and hopeful, got wounded or killed, and went right back to the rear by the route which they had come, shocked, bleeding or stiff."
E. B. Sledge, 1st Marine Division, describing the fighting on Okinawa, 1945

EG:112-L2e

"I imagined Marine dead had risen up and were moving silently about the area. I suppose these were nightmares, and I must have been more asleep than awake, or just dumbfounded by fatigue.... The pattern was always the same. The dead got up slowly out of their water-logged craters or off the mud, and, with stooped shoulders and dragging feet, wandered around aimlessly, their lips moving as though they were trying to tell me something. I struggled to hear what they were saying. They seemed agonized by pain and despair. I felt they were asking me for help. The most horrible thing was that I felt unable to aid them."
E. B. Sledge, 1st Marine Division, describing the fighting on Okinawa, 1945

EG:112-L2f

"A passionate hatred for the Japanese burned through all Marines.... My experiences...made me believe that the Japanese had mutual feelings for us.... This collective attitude, Marine and Japanese, resulted in savage, ferocious fighting with no holds barred.... This was a brutish, primitive hatred, as characteristic of the horror of war in the Pacific as the palm trees and the islands."
E. B. Sledge, 1st Marine Division, in With the Old Breed at Peleliu and Okinawa

EG:112-L3

IWO JIMA: A SLICE OF HELL

The Japanese garrison controlled the high ground on Iwo Jima. They had constructed an interlaced network of underground fortifications in the side of Mt. Suribachi, a dormant volcano dominating the 29-square-kilometer (11-square-mile) island. Instead of leaving cover to attack the landing force on the beaches, the Japanese remained in their dugouts and poured a deadly rain of fire on the Marines.

Wresting control of the island from the dug-in Japanese took nearly five weeks of bitter fighting that cost the Marine Corps over 6,800 dead and almost 20,000 wounded. Japanese losses were even higher. When the fighting ended on March 26, only 200 out of 20,700 remained alive as prisoners, reflecting the Japanese refusal to surrender.

EG:112-L3a-P3a
photograph

Marines under fire on Iwo Jima, February 1945.
Courtesy of the National Archives

EG:112-L3b-P3b
photograph

A dead American Marine on Iwo Jima, February 1945.
Courtesy of the National Archives

EG:112-L4

OKINAWA: A BATTLE OF UNPRECEDENTED FEROCITY

As the first assault waves landed on April 1, 1945, Okinawa's garrison put up little resistance. Instead of making a hopeless attempt to repel U.S. forces on the beaches, the Japanese largely abandoned the northern part of the island. They withdrew south to fortifications and caves in the hilly terrain near the ancient strongpoint of Shuri Castle. Such positions offered excellent fields of fire, allowing the Japanese to exact a heavy toll for every piece of territory surrendered.

As U.S. soldiers and Marines struggled to root out the island's 83,150 troops from their underground shelters, American and Japanese artillery transformed the southern part of the island into a wasteland of craters and corpses. Despite vast American superiority in material, Japanese resistance was not crushed until the end of June, at a cost of more than 12,500 U.S. dead and 35,500 wounded on land and at sea.

EG:112-L4a-P4a
photograph

Incinerating a Japanese-held cave on Okinawa, 1945.
Courtesy of the National Archives

EG:112-L4b-S4b
[U.S. Marine mannequin in full equipment with rifle or submachine gun. No label necessary.]

EG:112-L4c-S4c

Japanese Type 99 light machine gun, 1945.

EG:112-L5

WAR WITHOUT MERCY

By the third week of June, the remaining Japanese troops on Okinawa had withdrawn to the island's southernmost tip with no hope of reinforcement. On June 19, Lt. Gen. Ushijima, commander at Okinawa, ordered those soldiers who were left "to fight to the last and die." Then he and his staff committed hara-kiri, a ritual form of suicide.

Surrender, even for those inclined to do so, proved extremely difficult. Many Americans were wary of taking prisoners, in part because surrendering Japanese sometimes used concealed weapons to attack their captors. Under the Bushido code of the samurai, Japanese soldiers were told that surrender was dishonorable, cowardly, and illegal, and some were even shot by their superiors while attempting to give up. Over 10,000 soldiers, laborers, and Okinawan auxiliaries surrendered nonetheless, the largest number to do so during the war. But most of the Japanese--more than 70,000--chose suicide or fought to the death.

Thousands of Okinawan refugees, their homes and villages destroyed, also found themselves trapped by the fighting. Caught in the crossfire, and sacrificed by their own troops, at least 80,000 civilians perished.

EG:112-L5a-P5a

A Japanese soldier surrenders on Okinawa, 1945.
Courtesy of the National Archives

EG:112-L5b-P5b
photograph

Japanese dead near Shuri Castle, Okinawa, 1945.
Courtesy of the National Archives

EG:112-L5c-P5c

A Marine with friends killed on the Shuri line, Okinawa, 1945.
Courtesy of the National Archives

EG:112-L5d
(free-floating quote)

"Honor was bound up with fighting to the death. In a hopeless situation a Japanese soldier should kill himself with his last hand grenade or charge weaponless against the enemy in a mass suicide attack. But he should not surrender. Even if he were taken prisoner when he was wounded and unconscious, he `could not hold up his head in Japan' again; he was disgraced; he was `dead' to his former life."
Ruth Benedict, 1946, The Chrysanthemum and the Sword

EG:112-L6

COMBAT FATIGUE

The protracted fighting on Iwo Jima and Okinawa and high U.S. casualty rates caused severe combat fatigue for many U.S. soldiers and Marines.

EG:112-L6a-P6a
original painting

The Two-Thousand-Yard Stare by Tom Lea, a painting made during the vicious fighting on the island of Peleliu. Lea's notes state: "He left the States 31 months ago. He was wounded in his first campaign. He has tropical diseases.... He half-sleeps at night and gouges Japs out of holes all day. Two thirds of his company has been killed or wounded...he will return to attack this morning. How much can a human being endure?"
Lent by the U.S. Army Center of Military History

EG:112-L6b-P6b

A flight nurse tends a wounded Marine during preparation for a medical evacuation flight.
Courtesy of the U.S. Air Force

EG:112-L6c,d-P6c,d
[NOTE: These photographs and labels have been incorporated into section EG:000.]

EG:113-L1

THE KAMIKAZE

"Even if we are defeated, the noble spirit of this kamikaze attack corps will keep our homeland from ruin. Without this spirit, ruin would certainly follow defeat."
Vice Adm. Takijiro Onishi, sponsor of the kamikaze corps, 1945

During October 1944, Japanese navy and army pilots began a desperate campaign of suicide crash-dives against Allied ships. Called kamikaze (divine wind or wind from the gods), the attacks took their name from a typhoon that destroyed a 13th-century Mongol invasion fleet before it could reach Japan.

Vice Adm. Takijiro Onishi, who helped create the kamikaze corps, hoped the suicide attacks would enable Japan to overcome the Allies' military and industrial superiority or at least salvage a spiritual victory for Japan. The kamikaze campaign proved enormously costly, particularly to the invasion fleet off Okinawa, but it failed to stop the Allied advance.

EG:113-L1a-P1a
photograph

Kamikaze pilots of the Imperial Japanese Navy, 1945.
Photograph courtesy of the U.S. Navy

EG:113-L2

MOTIVATION OF THE KAMIKAZE

Americans were horrified and puzzled by the suicidal fury of the kamikaze attacks. The letters and diaries of the kamikaze pilots, however, reveal motives that were complex and deeply rooted in Japanese culture. A sense of inescapable moral obligation to family and the Emperor, who embodied the nation, was very important.

The Japanese honestly believed that an uncompromising determination would enable them to overcome a more powerful enemy whom they regarded as "weaker willed." The ancient and deeply rooted tradition of heroic figures in Japanese history who sacrificed their lives for honor or principles in a noble, but often hopeless, cause was also a factor.

Peer pressure was so effective during the early stages of the kamikaze campaign that official coercion was not required. By the end of the war, however, flying school graduates were being drafted directly into the kamikaze corps.

EG:113-L2a
(free-floating quote)

"Please do not grieve for me, mother. It will be glorious to die in action. I am grateful to be able to die in a battle to determine the destiny of our country."
From the last letter of kamikaze pilot Ichizo Hayashi, April 1945

EG:113-L2b-P2b
photograph

A kamikaze pilot ties on a squadron mate's hachimaki before a mission, late 1944.
Photograph courtesy of the U.S. Naval Institute

EG:113-L2c-S2c
hachimaki

Kamikaze pilot's hachimaki (headband), 1945.

EG:113-L2d-S2d
sword

Kamikaze pilot's ceremonial sword, 1945.

EG:113-L3

THE DEADLY "FLOATING CHRYSANTHEMUMS"

The invasion of Okinawa for the first time placed a large part of the U.S. Pacific Fleet within striking range of aircraft based in Japan. From April to June 1945 Imperial navy and army pilots flew more than 1,800 individual suicide sorties as part of 10 mass assaults of up to 400 aircraft each. Called Kikusui ("floating chrysanthemum") operations after the emblem of 14th-century samurai hero Kusunoki Masashige, these kamikaze attacks sank 28 U.S. ships and damaged 176, killing almost 5,000 Allied sailors.

The Okinawa attacks expended pilots at an alarming rate. To make up these losses, replacement pilot training was severely shortened. Some reached their units barely able to take off and land. Despite these problems, advocates of suicide operations hoped to meet Allied landings in Japan with over 6,000 kamikaze aircraft.

EG:113-L4

FIGHTING THE KAMIKAZE

The U.S. Navy suffered its heaviest losses of the entire war at Okinawa, mainly from kamikaze attacks. Although the mass suicide attacks failed to drive off the U.S. fleet, they severely shocked the Allies. Fearing the psychological effect of the kamikaze, U.S. military commanders ordered a news blackout on reports of the suicide attacks. The blackout lasted until the end of the Okinawa fighting. To the ships' crews, the experience confirmed Japanese fanaticism and offered a grim foreboding of what they would face in an invasion of the home islands.

EG:113-L4a

"Jap planes and bombs were hitting all around us. Some of our ships were being hit by suicide planes, bombs, and machine gun fire. It was a fight to the finish.... How long will our luck hold out?"
Seaman First Class James J. Fahey, aboard the light cruiser Montpelier, 1945, from Pacific War Diary

EG:113-L4b-P4b

The U.S. aircraft carrier Bunker Hill, after suffering two kamikaze hits off Okinawa, May 11, 1945.
Courtesy of the National Archives

EG:113-L4c-P4c
photograph

Damaged by antiaircraft fire, a kamikaze Zero fighter plunges breathtakingly close to the U.S. aircraft carrier Essex off Okinawa, May 14, 1945.

EG:113-L4d-P4d
photograph

U.S. Navy gun crews nervously scan the skies for suicide planes, 1944.

EG:113-L4e-P4e

Lt. Cmdr. (ChC) Joseph O'Callahan, Navy chaplain on board the aircraft carrier USS Franklin, administers the last rites to a seaman injured during an attack by a Japanese dive bomber in March 1945. Gutted by flames, listing badly, and having suffered more than 1,000 casualties, the Franklin managed to steam thousands of miles back to port. O'Callahan was awarded a Medal of Honor for "conspicuous gallantry" for his action during the attack.
Courtesy of the U.S. Navy

EG:113-L4f-P4f

His engine engulfed in flames, a wounded Navy pilot struggles to free himself from his cockpit.
Courtesy of the U.S. Navy

EG:113-L4g-P4g

This chaotic scene is the hangar deck of the escort carrier USS Sangamon, the morning after the ship was hit by a kamikaze aircraft in the Ryukyu Islands on May 4, 1945. The carrier lost 86 dead and 116 wounded in the attack.
Courtesy of the U.S. Navy

EG:114-L1

A PILOTED BOMB: THE YOKOSUKA MXY7 "OHKA"

The Ohka (Cherry Blossom) piloted suicide bomb was expected to be more destructive than conventional kamikaze airplanes. Conceived during 1944, the Ohka was released by a mother plane up to 100 kilometers (60 miles) from its target. Solid-propellant rockets boosted the bomb's speed to over 800 kilometers (500 miles) per hour during its final dive to the target, making it nearly impossible to shoot down. Its 1,200-kilogram (2,600-pound) warhead was powerful enough to sink or severely damage any ship unlucky enough to be hit.

But the Ohka proved far less formidable than hoped, leading U.S. sailors to nickname it the Baka (foolish) bomb. The lumbering mother planes were often shot down before flying close enough to the U.S. fleet to release their payloads. Over 750 Ohka Model 11s were produced, of which several hundred were used against the U.S. fleet off Okinawa. Only a handful of Ohka pilots managed to hit ships, and they sank only one. Conventional Japanese aircraft proved far more devastating, taking thousands of American lives.

EG:114-L1a-P1a
photograph

Ohka Model 11 captured on Okinawa, 1945.

EG:114-L2-S2

THE NATIONAL AIR AND SPACE MUSEUM'S "OHKA"

The Ohka displayed here is a Model 22, the successor to the Model 11 used at Okinawa. Unlike the rocket-powered Model 11, the Model 22 was powered by an early type of jet engine that was expected to double the bomb's range. Although flight testing had only begun during early 1945, the Japanese hoped to meet the Allied invasion fleet with hundreds of the new craft. Only about 60 were ever produced.

The U.S. Navy captured this Ohka in Japan and shipped it to the United States, where it spent a short time at Alameda, California, during 1946. The Navy transferred it to the Smithsonian Institution in 1948. After years in display storage at the National Air and Space Museum's Paul E. Garber Facility in Suitland, Maryland, the Ohka Model 22 was restored for this exhibition during 1993-94.

EG:114-L2a
specifications block

YOKOSUKA MX7Y OHKA MODEL 22

Wingspan: 4.1 m (13 ft 6 in)
Length: 6.9 m (22 ft 7 in)
Height: 1.2 m (3 ft 9 in)
Weight, empty: 545 kg (1,202 lb)
Weight, gross: 1,450 kg (3,197 lb)
Warhead: 600 kg (1,323 lb)
Engine: Tsu-11 hybrid reciprocating/turbojet, 200 kg (551 lb) static thrust
Manufacturer: Dai-Ichi Kaigun Koku Gijitsusho (Naval Air Technology Arsenal), Yokosuka, Japan, 1945

EG:115-L1

PREPARATIONS FOR THE INVASION OF JAPAN

As the Okinawa battle reached its bloody climax during June, the United States began to gather the forces required to execute the largest amphibious operation in history. The assault was expected to meet formidable opposition, including suicide attacks by aircraft, midget submarines, piloted torpedoes, motor boats, and even explosives-laden swimmers. To those responsible for planning and executing the invasion of Japan, the potential for appalling casualties was clear.

EG:115-L1a-P1a
photograph

Tanks intended for the invasion of Japan were stockpiled by the U.S. Army in the Philippines, spring 1945.
Courtesy of the National Archives

EG:115-L1b-P1b
photograph

Part of the massive Allied fleet scheduled to support the planned invasion of Japan was anchored at Ulithi Atoll, 1945.
Courtesy of the National Archives

EG:120-L1
Main Title

A TORCH TO THE ENEMY: THE STRATEGIC BOMBING OF JAPAN

EG:120-L2
Main Label

In 1943 President Franklin Roosevelt had urged that Japan be bombed "heavily and relentlessly." In early 1945, the U.S. Army Air Forces launched a major incendiary (firebombing) campaign. They had tried high-altitude daylight precision bombing and found it relatively ineffective, due to operational difficulties and the widely dispersed nature of the military and industrial targets in and around Japanese cities.

The only effective way to destroy such targets proved to be incendiary area bombing, a tactic already tried by others in Europe. Such bombing could not discriminate between strategic targets in cities and the cities themselves. By end of the war, the American incendiary campaign severely damaged Japan's ability to wage war, razed almost every major Japanese city, and killed several hundred thousand people.

EG:121-L1

FROM THE BLITZ TO THE FIRESTORM

The precedent for bombing Japanese cities had been set even before the war began. In the 1930s, Japan and Germany had bombed civilians in China and Spain, to the horror of much of the world. After World War II began, Axis air attacks increased, setting off a cycle of escalation. German bombers destroyed large parts of Warsaw, Rotterdam, London, and other cities. Having no other means to strike the enemy directly, the British retaliated with "area bombing" of German cities that was ultimately 10 times as destructive.

Between 1940 and 1943, small-scale attacks by the Royal Air Force's Bomber Command expanded into massive "thousand-bomber" raids aimed at destroying entire German cities. By spring 1945 incendiary (fire) bombs and high explosives had reduced much of Berlin, Hamburg, and Dresden to ruins.

EG:121-L1a-P1a
source: Amer. Heritage

Rotterdam, the Netherlands, after the German air raid of May 1940.
Courtesy of the Netherlands State Institute for War Documentation

EG:121-L1b-P1b

British civilians being rescued from the rubble after a German air raid during the Battle of Britain, 1940-41.
Courtesy of Popperfoto/Archive Photos

EG:121-L1c-P1c
famous picture--statute over Dresden ruins

The German city of Dresden after the Allied firebombing raids of February 1945.

EG:121-L2

THE AMERICAN BOMBING CAMPAIGN IN EUROPE

The leaders of the U.S. Army Air Forces entered World War II determined to prove the value of daylight precision bombing. They intended to destroy Germany's war-making ability by attacking key factories, oil production facilities, transportation networks, and other strategic objectives.

The Army Air Forces persisted in the face of British skepticism, heavy losses, and mixed results. True precision bombing was difficult to achieve. Cloudy weather often resulted in less accurate drops by radar. But by mid-1944 the gradual erosion of German air defenses, combined with a massive buildup of U.S. bomber forces, allowed daylight attacks on industrial targets to continue.

EG:121-L2a-P2a
graphic

Total weight of bombs dropped on targets in Germany by U.S. strategic bombers, 1943-44.

EG:121-L2b-P2b

American B-17s bomb a German target, 1944-45.

EG:122-L1

THE LONG ROAD TO TOKYO

In 1941, as Japanese aggression in Asia brought war with the United States ever closer, the Army Air Corps began to formulate contingency plans for bombing Japan. Then came the Pearl Harbor attack and the sudden Japanese advance in the Pacific. Except for the daring April 1942 raid by aircraft-carrier-launched bombers led by Lt. Col. James H. Doolittle, the skies over Japan remained free of American aircraft.

Protected by the enormous distances separating it from Allied bases, Japan was not struck again until June 1944, when small numbers of the new B-29 Superfortress began attacks from China. The stage for the final bombing campaign of World War II was not set, however, until the capture of the Marianas Islands, situated 2,100 kilometers (1,300 miles) from Tokyo.

EG:122-L1a-P1a

"Bomber lanes to Japan," published in United States News, October 31, 1941.

EG:122-L2

TOKYO IN FLAMES

Dismayed with the disappointing effects of early raids on Japanese industry, and under pressure from Washington to launch a more effective firebombing campaign, Maj. Gen. Curtis E. LeMay changed tactics a month after taking command of the Marianas-based bombers in January 1945. Instead of striking individual factories in daylight precision raids with high-explosive bombs, his B-29s would attack urban areas at night with incendiary (fire) bombs.

LeMay ordered the first major test of his new tactics on the night of March 9-10, 1945. Flying in three streams 650 kilometers (400 miles) long, 334 B-29s struck Tokyo for nearly three hours. Within 30 minutes of the first bomb, fires were burning out of control. About 100,000 people perished and a million were made homeless.

EG:122-L2a-P2a
photograph

Ordnance crewmen prepare a maximum load of incendiary bombs for an aptly named B-29, 1945.

EG:122-L2b-P2b

A section of Tokyo immediately after the end of the war, August 1945.

EG:122-L3

MASSIVE DESTRUCTION

The great Tokyo raid marked the beginning of a five-month period during which Japan would suffer widespread devastation. B-29s bombed one city after another, destroying half the total area of 66 urban centers, burning 460 square kilometers (180 square miles) to the ground. Some cities, like the chemical and textile manufacturing center of Toyama, were completely destroyed. The five-month incendiary campaign lowered the overall industrial output of Japan by 60 percent, reduced the production of key materials like oil and aluminum by 90 percent, and took several hundred thousand lives.

EG:122-L3a

"No matter how you slice it, you're going to kill an awful lot of civilians. Thousands and thousands.... We're at war with Japan. Would you rather have Americans killed?"
Maj. Gen. Curtis E. LeMay, 1945

EG:122-L3b-P3b

B-29s of the 73rd Bombardment Wing, XXI Bomber Command, shower Yokohama with incendiary bombs, May 25, 1945.

EG:122-L3c-P3c

U.S. Air Force map of cities destroyed during the incendiary campaign, with U.S. cities of similar populations included for comparison.

EG:122-L3d-S3d

Starting in June 1945, American aircraft dropped millions of leaflets like this one over dozens of Japanese cities, including Hiroshima, warning people to leave cities that were to be bombed. The leaflets were intended to save lives and counter Japanese accusations of "indiscriminate bombing of civilians."

EG:122-L4

OPERATION STARVATION

Besides the all-out air attacks on Japanese cities, additional steps were taken to force Japan to surrender. By spring 1945, U.S. submarines and aircraft had destroyed the Japanese merchant marine. A B-29 campaign aptly code-named "Operation Starvation" completed the process of isolating Japan by mining its harbors and coastal waters. Carrier-based aircraft contributed to the operation by bombing and strafing a wide variety of targets in Japan. By early summer, shipping, manufacturing, transportation, and food distribution had largely ground to a halt.

EG:122-L4a-P4a

A Japanese freighter starts to burn after being strafed by a U.S. Navy fighter, summer 1945.
Courtesy of the National Archives

EG:130-L1
Main title

TWO NATIONS AT WAR

EG:131-L1

HOME FRONT, U.S.A.

World War II energized the United States as had few events in our national history, while inflicting many new hardships. With consumer goods in short supply and rationing in force, Americans saved as never before. They invested in war bonds, lending the government the funds needed to finance the war effort. Women and members of minority communities entered the work force in unprecedented numbers. Almost everyone--from children to senior citizens--also participated in community projects to help the war, such as recycling metals and other items in short supply.

But after three years of war and the loss of a quarter of a million servicemen in combat, Americans longed for peace, the return of their sons, brothers, husbands, and fathers, and a return to normal life.

EG:131-L1a-P1a
photograph

Children from the Washington Elementary School in Butte, Montana, collect scrap metal for the war effort, 1942 or 1943.
Courtesy of Helen Claire McMahon

EG:131-L1b-S1b

Ration stamps.

EG:131-L1c-S1c

Gold stars like this replica were hung in windows to commemorate loved ones killed in the service of their country.

EG:131-L1d-S1d

The dreaded telegram: Patrick E. King of Elkins, West Virginia, a U.S. Navy Seabee, was killed when his ship was sunk in the Philippines on Christmas Day 1944.

EG:131-L1e-S1e

A letter of consolation from Secretary of the Navy James Forrestal to the father of Patrick E. King.

EG:131-L1f-S1f

The flag used in the reburial of Patrick E. King after the return of his body to the United States in 1947.

EG:131-L1g

All items from Patrick E. King lent by the heirs of P. F. King: Mary Catherine Cole, Patricia Cochran, and Frank Florentine

EG:131-L1h

The Purple Heart awarded posthumously to Patrick E. King.

EG:131-L2

THE ARSENAL OF DEMOCRACY

By 1943 the United States had become, as President Franklin Roosevelt had predicted, "the Arsenal of Democracy." The miracles achieved by wartime industry demonstrated the enormous untapped power of the American economy. During World War II, U.S. industry produced 299,000 airplanes, 88,000 ships, 102,000 tanks and self-propelled guns, 372,000 artillery pieces, and 44 billion rounds of small-arms ammunition. At the 1943 Teheran Conference, Soviet leader Joseph Stalin, no admirer of capitalism, toasted: "American production, without which this war would have been lost."

EG:131-L2a-P2a

Over 3,000 B-24 Liberator bombers were built during the war at Consolidated's Fort Worth, Texas, plant.
Courtesy of Lockheed Fort Worth

EG:131-L2b-P2b

Welders, Todd Erie Basin dry dock, Pennsylvania, 1943.
Courtesy of the Library of Congress

EG:131-L3

A HATED ENEMY
"Probably in all our history, no foe has been so detested as were the Japanese. The infamy of Pearl Harbor was enough; but to it were soon added circumstantial accounts of Japanese atrocities at Hong Kong, Singapore, and finally and most appallingly, upon American prisoners in the Philippines."
Allan Nevins, While You Were Gone, 1946

EG:131-L3a-P3a
source: Dower

This 1943 British cartoon was published in the New York Times Magazine.

EG:131-L3b-S3b, etc.
anti-Japanese propaganda posters, buttons, etc., from NMAH

American anti-Japanese propaganda.

EG:131-L4

FINISHING THE JOB
While Americans celebrated the victory in Europe in May 1945, they knew the job was far from over. Looming on the horizon was the prospect of terrible losses in an invasion of Japan.

EG:131-L4a-S4a
poster - "Next"

War bond drive poster, 1945.

EG:132-L1

THE JAPANESE HOME FRONT AT WAR
By the summer of 1945, American land, air, and naval forces had finally arrived on the doorstep of the home islands. B-29s of the Twentieth Air Force were systematically destroying Japan's ability to wage war. The submarine campaign and aerial mine-laying operations had cut lines of supply and communication.

After the fall of Okinawa, the Japanese people waited in their island fortress, prepared to repulse the enemy on the beaches. Even as their deteriorating situation was increasingly undermining their ability to resist, surrender remained unthinkable, and the war had considerable popular support.

EG:132-L1a-P1a

Tokyo street scene, 1943. The advertising slogan beneath the Japanese soldiers on the billboard reads, "We won't stop shooting!"
Courtesy of Asahi Shimbun

EG:132-L2

HARDSHIP ON THE HOME FRONT
"Everything goes to the military, the black marketeers, and the big shots. Only fools queue up."
Kiyosawa Kiyoshi, diary entry, April 30, 1943

By fall 1944, the Japanese people could no longer adequately feed or clothe themselves. The demands of the Japanese war machine caused a shortage of farm workers and chemical fertilizers for agriculture. The Allied blockade had cut the supply of vital rice and soy products once imported from Korea and China.

Although silk remained available, cotton and other imported fibers had vanished. Clothes were now manufactured of sufu, a cloth made of small amounts of cotton woven with wood pulp, goat hair, and tree bark.

Dwindling supplies of food and clothing led to rationing, price controls, and long lines outside stores. Despite stiff penalties, prices soared and the black market thrived. As early as spring of 1944, rice sold for 14 times the official price.

EG:132-L2a-P2a

Civilians queue in Tokyo for their weekly food allotment, 1945.
Courtesy of the Imperial War Museum

EG:132-L2b-S2b
items from Japan to be obtained if possible

Food ration stamps, circa 1945.

EG:132-L3

LABOR

"On the night shift, after standing up for hours, we were marched into a dining hall where we had our supper. Supper was a bowl of weak, hot broth, usually with one string of a noodle in it and a few soybeans on the bottom. We would gulp it down, then go back to work in the factory."
Hirako Nakamono, a school girl employed in a Hiroshima aircraft factory, 1945

Because of military conscription, Japanese industry suffered from a severe labor shortage throughout the war years. By 1944 the situation had become critical. Farm workers judged unsuitable for military service were drafted for factory labor. Women went out to work in unprecedented numbers. Junior and senior high schools closed as students were assigned to industry, public transport, and the construction of roads and fire-breaks.

EG:132-L3a-P3a

Schoolgirls learning to operate machine tools for armaments production, 1944.
Photograph courtesy of UPI

EG:132-L4

SLAVE LABORERS AND PRISONERS OF WAR

The Japanese government turned to slave labor to ease severe manpower shortages and provide prostitutes for its troops. Some 667,000 Koreans and 38,000 Chinese who had labor contracts to work in Japan ultimately became slave laborers or were forced to be "comfort girls." They worked under armed guard by day and were housed behind electrified fences at night. Protests were punished by beatings, floggings, and execution. During the war, an estimated 67,000 Korean and Chinese laborers died in Japanese custody.

By 1945 some 10,000 of almost 26,000 American prisoners of war had died or been executed. Those held in Japan were also treated as slave laborers. Like their compatriots in Japanese camps overseas, they were often starved, beaten, tortured, and executed.

EG:132-L4a-P4a
Time/Life, Japan at War, p. 162

A blindfolded American flyer in Kobe, Japan, after capture. Beside him is his inflated survival raft.
Courtesy of Mainichi Shimbun

EG:132-L4b-P4b

Newly liberated American prisoners in the Philippines, February 1945.
Courtesy of the National Archives

EG:132-L5

THE COMING OF THE "B-SAN"

The first B-29 raids were directed against industrial targets and took few lives. "We went through those early bombings in a spirit of excitement and suspense," one Japanese journalist recalled. "There was even a spirit of adventure, a sense of exultation in sharing the dangers of war even though bound to a civilian existence." People joked about the "regularly scheduled service" of the "honorable visitors." The B-29s, lovely silver specks glittering in the sun as they flew high overhead, became popularly known as the "B-San," or "Mr. B."

Long insulated from personal experience of war, Japanese civilians were ill-prepared for the firebombing raids of 1945. Since most able-bodied men had been drafted into the military, the burden of civil defense fell on women and the elderly, who were organized into neighborhood associations. But the government gave them only primitive, hand-operated pumps, bucket brigades, and wet mops for fighting fires.

EG:132-L5a-P5a
photograph

Air raid drill, 1944.
Photograph courtesy of Mainichi Graphic

EG:132-L6

THE DEMONIC OTHER

"It has gradually become clear that the American enemy, driven by its ambition to conquer the world, is coming to attack us.... The barbaric tribe of Americans are devils in human skin...Western Barbarian Demons."
From an article published in "Manga Nippon," a popular magazine, October 1944

Japanese propaganda convinced soldiers and civilians alike that American troops were waging a "war of extermination" against Japan. The mass suicides on Saipan and Okinawa demonstrated that Japanese mothers, expecting to be raped and murdered, would kill themselves and their children, rather than allow themselves to fall into the hands of the "devilish" U.S. Marines. They did this despite the best American attempts to convince them to surrender and to assure that they would not be harmed.

EG:132-L6a,b-P6a,b
from Dower, War Without Mercy

A Japanese magazine cover, depicting President Roosevelt as a demon, 1943.

EG:132-L7

JAPAN PREPARES TO MEET THE INVASION

On June 12, the Japanese legislature passed laws requiring military service from all males 15 to 60 and all females 17 to 40 years of age. The government declared martial law. Thus the Japanese homeland became a war zone and nearly all its adults became soldiers.

Beginning in the spring of 1945, the Japanese military began to husband aircraft in the home islands. By mid-summer, Japan had over 6,000 planes available as kamikazes. The military had dispersed them to improvised airfields and planned to target not warships, but slow-moving, crowded troop transports and landing craft. On the ground, the Japanese army correctly guessed likely landing sites and prepared heavy defenses.

EG:132-L7a-P7a

Women training with bamboo spears, 1945.
Photograph courtesy of Shunkichi Kikui

EG:132-L7b-S7b
if available

Japanese bamboo spear for home defense, 1945.
Lent by the Marine Corps Museum

EG:200-L1
Unit main title

THE DECISION TO DROP THE BOMB

EG:200-L2
Unit main text

While Americans and Japanese alike expected the war to end only after a bloody invasion of Japan, the U.S. government was readying a secret weapon that would dramatically affect the war's outcome: the atomic bomb. In the spring and summer of 1945, American leaders had to decide whether to use this new weapon against Japan.

According to British Prime Minister Winston Churchill, however, "the decision whether or not to use the atomic bomb...was never even an issue." Upon becoming President in April 1945, Harry Truman inherited an expensive bomb project that had always aimed at producing a military weapon. Truman saw the bomb as a way to end the war and save lives by avoiding a costly invasion of Japan. He wanted, he said, to prevent casualties on the scale of "an Okinawa from one end of Japan to the other."

EG:210-L1
Main title

DECIDING TO BUILD THE BOMB

EG:210-L2
Main text

The atomic bomb was ultimately used against Japan, but it was built as a response to a German threat. In late 1938, German scientists discovered how to split ("fission") the uranium atom, releasing nuclear energy. When physicists in the United States learned of this discovery, many feared that Hitler might acquire a frightening new weapon: an atomic bomb. Refugees from the Nazis, most notably the Hungarian physicists Leo Szilard and Eugene Wigner, feared this possibility so much that they began to search for a way to warn Western governments.

EG:210-L2a-P2a

The prospect of Adolf Hitler with an atomic bomb drove all Allied efforts to acquire nuclear weapons.

EG:210-L2b-P2b
Day One

German scientists Otto Hahn (right) and Lise Meitner (left) were among the co-discoverers of uranium fission. Meitner was a Jewish refugee in Sweden at the time of the discovery, but she was in communication with Hahn.

EG:210-L3

THE EINSTEIN LETTER

Searching for a way to warn the U.S. government, Szilard and Wigner sought the help of famous physicist Albert Einstein, himself a refugee from Nazi Germany. In August 1939, Einstein signed a letter to President Roosevelt regarding the possibility of creating an atomic bomb. It was conveyed to Roosevelt in October.

The letter helped initiate the American atomic bomb project, but the United States did not immediately begin a crash program to build nuclear weapons. Until 1941, efforts proceeded quite slowly.

EG:210-L3a-P3a

After the war, Albert Einstein and Leo Szilard reenacted their famous letter signing in August 1939.
Still photograph from the "March of Time," courtesy of SFM Entertainment and Time-Life Films Inc.

EG:210-L3b-S3b
Original (facsimile after 3 months)

This is the original letter from Albert Einstein to President Roosevelt.
Lent by the Franklin Delano Roosevelt Library

EG:210-L3c-P3c
bio. picture

Leo Szilard (1898-1964) in 1949. In 1933 the Hungarian refugee physicist first conceived of a nuclear chain reaction as a means of liberating atomic energy and creating an atomic bomb. He had only recently left Germany because of Hitler's rise to power. During World War II, Szilard worked for the Manhattan Project's Chicago laboratory. Throughout his life he believed that scientists needed to take a leading political role in society. After the war, he devoted much of his energy to warning the world of the dangers of the nuclear arms race.
Science Service courtesy of the AIP Emilio Segrè Visual Archives

EG:210-L4

A CRASH PROGRAM BEGINS

In 1941, even before the Japanese attack on Pearl Harbor, the American atomic bomb program was accelerating. Independent research in Britain strongly supported the feasibility of a bomb. Furthermore, Vannevar Bush, the head of American civilian scientific research for the military, received a report that German scientists were pushing ahead on their own bomb project. On October 9, 1941, President Roosevelt approved intensified research into the feasibility of an atomic bomb.

EG:210-L4a-P4a

Key scientific leaders of the American atomic bomb effort: from the left, Ernest O. Lawrence, Arthur H. Compton, James B. Conant, and Vannevar Bush.
Courtesy of the National Archives

EG:210-L5

THE GERMANS DECIDE NOT TO BUILD A BOMB

In June 1942, soon after the American decision to proceed with the atomic bomb, the German authorities (unaware of that decision) judged that the huge investment required to produce a bomb was too large for their war economy to support. They also expected to win the war before such an effort would bear fruit. The United States and Britain were unaware of Germany's decision and continued to assume that the Nazis would acquire the atomic bomb, possibly before the Allies did.

Japan also investigated nuclear weapons, but its efforts never proceeded beyond small-scale laboratory research and had no impact on the Anglo-American decision to build an atomic bomb. Still, there is little doubt that if Japan (or Germany) had been able to construct such a weapon, it would have been used against the Allies.

EG:210-L5a-P5a

American and British intelligence officers dismantle the last German nuclear reactor experiment in April 1945. Research on reactors continued during the war, but the small German atomic program never advanced to the point of creating a working reactor.
Courtesy of Brookhaven National Laboratory

EG:210-L5b-P5b

Dr. Yoshio Nishina led one of the Japanese projects to investigate the possibility of an atomic bomb. He did not get beyond small-scale laboratory experiments before his laboratory was destroyed by an American air raid on Tokyo in April 1945.
Nishina Memorial Foundation, courtesy of the American Institute of Physics, Emilio Segrè Visual Archives

EG:210-L6

THE MANHATTAN PROJECT: A GIGANTIC ENGINEERING ENTERPRISE

In June 1942, President Roosevelt transferred the atomic bomb project to the War Department's Army Corps of Engineers. To disguise this super-secret project, the Corps created a Manhattan Engineer District, with a headquarters initially based in New York City. Three months later, Brig. Gen. Leslie Groves was appointed to head the "Manhattan Project."

Groves' major task was to build the huge industrial facilities needed to separate the small amounts of uranium and plutonium needed for a bomb. Although the Manhattan Project is best remembered for its brilliant scientific leadership, it was, above all, a massive engineering enterprise. At the height of construction in mid-1944, the project employed nearly 129,000 people. No other nation in the world had the massive industrial capacity to make this possible.

EG:210-L6a-P6a

The huge K-25 plant was only one of the facilities built at Oak Ridge, Tennessee, to separate uranium 235 for a bomb. K-25 was nearly 1 kilometer (0.6 miles) long and covered an area of 17 hectares (43 acres).

EG:210-L6b-P6b

At Hanford, Washington, the Corps of Engineers supervised the construction of a giant facility that used nuclear reactors to generate plutonium 239, which became the principal bomb fuel. The D and F reactors are shown here in December 1944.

EG:210-L6c-P6c

Workers eating in a canteen at the Hanford, Washington, plutonium production plant.

EG:210-L6d

Manhattan Project photographs courtesy of the National Archives

EG:210-L7

A MOST SECRET PLACE

In late 1942, Manhattan Project chief General Groves chose physicist J. Robert Oppenheimer to head a new laboratory devoted to designing atomic bombs. Oppenheimer recommended a remote site in New Mexico for the new facility, where project scientists, many of them world-famous, could work together in complete secrecy. The Los Alamos Laboratory was opened in April 1943.

During the last two years of World War II, the Los Alamos staff made a crash effort to create two different kinds of bombs, one using uranium, the other plutonium. The plutonium bomb proved to be Los Alamos' most difficult challenge.

EG:210-L7a-P7a

This picture of the technical area at Los Alamos shows the rough, temporary character of the buildings at the New Mexico desert site.
Courtesy of the National Archives

EG:210-L7b-S7b
[LABEL DELETED]

EG:210-L7c-S7c

Button worn by Dr. Norman Ramsey for admittance into a classified area at Los Alamos.
Lent by the National Museum of American History.

EG:210-L7d-P7d
Picture over paired biographies.

Dr. Robert Oppenheimer and Maj. Gen. Leslie Groves in September 1945 at the site of the world's first nuclear explosion.

J. Robert Oppenheimer (1904-1967) was born into a wealthy New York Jewish family and became a brilliant student of theoretical physics. The Nazi persecution of the Jews and the rise of fascism in Europe turned him into an activist with personal ties to Communists--ties that would cost him during the anti-Communist climate of the 1950s. In 1942 he became Groves' inspired choice to head the Los Alamos Laboratory. The young physicist proved to be a superb leader and scientific manager. After the war, he played an important role in advising the U.S. government about nuclear weapons.

Leslie R. Groves (1896-1970) graduated from West Point in 1918 with a degree in civil engineering. During the U.S. military buildup, Groves served as the deputy commander of all Army construction projects and was a key figure in the building of the Pentagon. In September 1942, he was assigned to lead the Manhattan Project. Though some found him authoritarian, his technical competence and decisive leadership proved essential to the success of the massive program.
Courtesy of the National Archives

EG:210-L8

AN EXPECTATION OF MILITARY USE

The few decision-makers who knew about the Manhattan Project always assumed that the atomic bomb would be used against either Germany or Japan. Some, like Major General Groves, thought that it could be decisive in ending the war. That alone could justify the United States' huge investment in the bomb--$2 billion, or roughly $20 billion in 1990s dollars--but the project's great expense also motivated him to have it ready as soon as possible. In the spring of 1945, Groves accelerated the production of fissionable materials.

EG:210-L8a

"At no time, from 1941 to 1945 did I ever hear it suggested by the President, or any other responsible member of the government, that atomic energy should not be used in the war."
Henry Stimson, Secretary of War (1940-45)

EG:210-L8b

"If this weapon fizzles, each of you can look forward to a lifetime of testifying before congressional investigating committees."
Maj. Gen. Leslie R. Groves to his staff, December 24, 1944

EG:211-L1

THE "FAT MAN" ATOMIC BOMB

The Manhattan Project produced two different types of atomic bombs. The "Little Boy" type, which was dropped on Hiroshima, triggered a nuclear explosion by firing one piece of uranium 235 into another. The "Fat Man" type, which was dropped on Nagasaki, was more complex. It contained a sphere of plutonium 239, around which were arrayed blocks of high explosives. These were designed to produce a highly accurate and symmetrical implosion, which would compress the plutonium sphere to a critical density and set off a nuclear chain-reaction. Scientists at Los Alamos were not entirely confident in the plutonium bomb design, so they scheduled a test of "Fat Man" for July 1945.

EG:211-L1a-P1a
redraw "Fat Man Assembly" diagram from U.S. Nuclear Weapons
No label needed.

EG:211-L2-S2

"FAT MAN" ATOMIC BOMB CASING

This is an actual atomic bomb casing similar to the one dropped on Nagasaki. It contains no nuclear material and presents no radiation hazard.
Lent by the Navy Museum, Washington Navy Yard

EG:211-L2a
specifications block

"FAT MAN" ATOMIC BOMB

Weight:	4,680 kg (10,300 lb)
Diameter:	1.5 m (5 ft)
Length:	3.25 m (10 ft 8 in)
Yield:	About 22 kilotons (the equivalent of 22,000 tons of TNT)
Manufacturer:	Manhattan Project (1944-46), Atomic Energy Commission (1947-49)

EG:211-L3

NUCLEAR FISSION AND CHAIN REACTION

The atomic nucleus contains elementary particles called protons and neutrons. The nuclear energy holding them together is thousands of times stronger than the chemical energy binding atoms together in molecules (like TNT, for example). For certain very heavy elements (uranium 235 and plutonium 239), the nucleus is almost unstable. When hit by a neutron, it will split, or "fission," into two smaller nuclei, which fly violently apart, releasing nuclear energy and more neutrons.

If a "critical mass" of such an element (a few kilograms) is rapidly brought together in a bomb, the average neutron cannot escape from the mass before it hits and splits another nucleus. This releases more neutrons, each of which repeats the process. The resulting runaway nuclear "chain reaction" burns through the fuel in a few millionths of a second, liberating energy equal to that in many tons of conventional explosives.

All nuclear weapons use fission as the basic process to make a nuclear explosion. Most current nuclear weapons, however, use a fission bomb to trigger the "fusion" of hydrogen nuclei. The resulting "thermonuclear" or "hydrogen" bombs are far more efficient and destructive than atomic bombs. There is in principle no limit to the power of hydrogen bombs.

EG:211-L3a-IL3a
Diagram

The principle of nuclear fission.

EG:211-L4

AT THE CORE OF THE BOMBS: URANIUM 235 AND PLUTONIUM 239

Natural uranium is mostly uranium 238, mixed with a small amount of uranium 235, the isotope used in bombs. Because the two forms are chemically identical (differing by three electrons), the problem of purifying enough pure uranium 235 to make a bomb was very difficult and required an enormous industrial plant.

When enough uranium 235 is brought together, the resulting fission chain reaction can produce a nuclear explosion. But the "critical mass" must be assembled very rapidly; otherwise the heat released at the start of the reaction will blow the fuel apart before most of it is consumed. To prevent such an inefficient "pre-detonation," the uranium bomb uses a gun to fire one piece of uranium 235 down the barrel into another.

An atomic bomb can also use plutonium. If natural uranium is assembled in a specially constructed pile (or reactor), its own radioactivity converts some of the uranium 238 into a new element called plutonium 239. Plutonium is chemically distinct from uranium and easily separated. But it naturally emits so many neutrons that even the gun-type bomb would be too slow to prevent "pre-detonation." This problem was solved by using a symmetrical shell of explosives to squeeze a plutonium sphere. The implosion instantly increases the plutonium's density, which traps the neutrons inside and causes a runaway chain reaction.

For the uranium bomb, the fuel was very difficult to produce but relatively easy to explode. For the plutonium bomb, the situation was the opposite. The Manhattan Project pursued both tracks simultaneously.

EG:220-L1
main title

"THE MOST TERRIBLE WEAPON EVER KNOWN IN HUMAN HISTORY"
Secretary of War Henry L. Stimson

EG:220-L2
main text

On April 12, 1945, President Roosevelt died unexpectedly in Warm Springs, Georgia. Vice President Harry S. Truman, in office for less than three months, was sworn in the same day. Truman was quickly confronted with the need to approve the use of the atomic bomb, which was expected to be ready by August.

Truman confronted a complicated situation in Europe and the Far East. Japan, although weakened, was not willing to surrender. The atomic bomb offered a way to change that. A bloody invasion loomed if atomic bombs did not force the Japanese to surrender.

EG:220-L2a-P2a

Servicemen in New York City read about President Roosevelt's death, April 12, 1945.
Courtesy of the Bettmann Archive

EG:220-L2b-P2b

President Truman is sworn in by Chief Justice Harlan F. Stone in the presence of Mrs. Truman and cabinet members.
Courtesy of the Bettmann Archive

EG:220-L3

TRUMAN AND THE ATOMIC BOMB

President Truman entered office with no knowledge of the atomic bomb, because Roosevelt had never told him about it. Shortly after Truman's swearing-in, Secretary of War Henry Stimson mentioned it to him briefly. On April 25, Stimson and Groves gave him a more extensive briefing.

Truman had inherited a project that had always aimed at making a practical weapon. He saw the atomic bomb principally as a means to end the war quickly and save American lives.

EG:220-L3a-P3a

President Truman and Secretary of War Stimson discuss the atomic bomb, August 8, 1945.
Courtesy of the National Archives

EG:220-L3b-P3b
bio. picture

Senator **Harry S. Truman (1884-1972)** with Senators Ralph Brewster and Homer Ferguson, 1943. A World War I veteran and Missouri farmer and politician, Truman achieved prominence in the U.S. Senate as chairman of the powerful Truman Committee, which watched over the U.S. industrial and military buildup during World War II. As President, he held ultimate responsibility for the decision to use the atomic bomb.
Courtesy of the National Archives

EG:220-L3c-S3c
original or facsimile document

An original copy of the memorandum Stimson presented to Truman on April 25, 1945. It reads in part, "Within four months we shall in all probability have completed the most terrible weapon ever known in human history, one bomb of which could destroy a whole city.... It is extremely probable that the future will make it possible [for such a weapon] to be constructed by smaller nations or even groups, or at least by a large nation in a much shorter time."

EG:220-L3d-P3d
bio. picture

Secretary of War **Henry L. Stimson (1867-1950)** tours the battlefront in France with Gen. Omar Bradley in 1944. A prominent statesman for over 40 years, Stimson served as Secretary of War for William Howard Taft, Governor-General of the Philippines for Calvin Coolidge, and Secretary of State for Herbert Hoover. Although Stimson was a lifelong Republican, he became Roosevelt's Secretary of War in 1940 and soon became a key policy advisor on the atomic bomb. Courtesy of the National Archives

EG:230-L1
main title

JAPAN SEEKS A NEGOTIATED PEACE

EG:230-L2
main text

On April 5, 1945, one week before Roosevelt's death, Japanese Prime Minister Kuniaki Koiso and his cabinet resigned because of the increasingly disastrous course of the war--the second such resignation in less than a year. A peace faction in the military-dominated Japanese government had begun to realize that a way had to be found to negotiate an end to the war. The Allied demand for "unconditional surrender" was, however, regarded as intolerable.

Emperor Hirohito approved the appointment of the aged Adm. Kantaro Suzuki as the new Prime Minister. But Suzuki's government was hobbled by severe tensions between the peace faction and militarists who vowed to fight to the bitter end. As a result, direct negotiations with the United States could not be undertaken, and Japan lost an opportunity to try to end the war early.

EG:230-L2a-P2a

Admiral Suzuki walks behind Japanese Emperor Hirohito.
Courtesy of the National Archives

EG:230-L3

PEACE THROUGH MOSCOW?

The Soviet Union and Japan had remained at peace, although they were allied with opposing sides in the European war. In the fall of 1944, growing desperation drove the Japanese government to approach Joseph Stalin's Communist regime for help in fending off defeat. After the Suzuki cabinet was appointed in April 1945, these initiatives were renewed.

Two key civilian politicians--Marquis Kido, the Emperor's closest adviser, and Shigenori Togo, the new foreign minister--hoped to use this initiative to negotiate a conditional surrender with the Allies. But they had to conceal this intention from the militarists, who vowed to fight on until the Allies gave Japan more concessions. As a result, the Moscow initiative remained weak and indecisive.

EG:230-L3a-P3a

Marquis Koichi Kido, Lord Privy Seal and closest political adviser to Japanese Emperor Hirohito.

EG:230-L3b-P3b

Shigenori Togo (right), foreign minister in the Suzuki cabinet, with munitions minister Teijiro Toyoda.
Courtesy of the Imperial War Museum

EG:230-L3c-P3c

Emperor Hirohito (1901-1989) inspects bomb damage in Tokyo after a major air raid, 1945. A retiring and bookish man, the Emperor had traditionally been portrayed as a "living god" who exercised little real authority over affairs of state. The reality was more complex. While he was opposed to war with the United States and Britain prior to 1941, he did not discourage Japanese expansionist policies in Asia. Although he tentatively encouraged the Moscow peace initiative in 1945, he also listened to military advisors who argued that one final victory would force Allied leaders to offer improved peace terms. He failed to take decisive action until the atomic bombs had been dropped and the Soviets had declared war.
Courtesy of the National Archives

EG:230-L4

THE ALLIED POLICY OF UNCONDITIONAL SURRENDER

The demand that the Axis powers surrender unconditionally was first proposed by President Roosevelt at the Casablanca Conference in early 1943. This policy was quickly accepted by the Allies because it made war aims clear. It became especially important in the troubled relationship between the Western powers and the Soviet Union. It reassured Soviet dictator Joseph Stalin, who suspected Britain and the United States of wanting to make a compromise peace with the Nazis, leaving his country to bear the brunt of the German war machine.

Unconditional surrender was also a popular policy in America, because of the fear that anything less than total victory would fail to root out the causes of fascism and militarism in Germany, Italy, and Japan--just as the Versailles Treaty after World War I had failed to prevent the resurgence of German power.

EG:230-L5

THE EMPEROR AND "UNCONDITIONAL SURRENDER"

A key obstacle to any Japanese surrender was the Emperor's position. To the Japanese warlords, the Allied demand for unconditional surrender meant the total destruction of their political system, including a "divine" monarchy that had survived for more than a thousand years.

To most Americans, Hirohito was a hated symbol of Japanese military aggression. Many wanted him executed, or at least imprisoned or exiled. Undersecretary of State Joseph Grew nonetheless argued that the Japanese might surrender if allowed to retain their Emperor. He also asserted that the Emperor would be "the sole stabilizing force" capable of making the Japanese armed forces accept a surrender order. Truman ultimately did not accept Grew's advice because he foresaw much resistance to modifying the Allied policy.

EG:230-L5a-S5a

The cover of this December 1942 Collier's magazine depicts Japanese Emperor Hirohito as an evil bat creature.

EG:230-L5b-S5b
button reads: "To Hell with Hirohito"

A button distributed in World War II.
Lent by the National Museum of American History

EG:230-L5c-P5c
bio. picture

Joseph C. Grew (1880-1965) was the last U.S. ambassador to Tokyo before the war. In 1944-45, he served as deputy head of the State Department and Acting Secretary of State. Grew understood the mentality of the Japanese leadership and wanted to end the war early in part to minimize Soviet influence in Asia.
Courtesy of the National Archives

EG:230-L6

"MAGIC" AND "ULTRA": TWO PICTURES OF JAPANESE INTENTIONS

In 1940 American intelligence experts cracked the Japanese diplomatic code. This operation, codenamed "Magic," allowed the deciphering of messages between Tokyo and the Japanese Embassy in Moscow and gave the United States knowledge of the Japanese peace initiative in the spring of 1945. The intercepted messages showed that Japan was seeking Russian mediation to end the war, but also showed that it rejected "unconditional surrender" and hoped for significant Allied concessions.

American military intelligence was also deciphering Japanese military communications. These intercepts, codenamed "Ultra," revealed in the summer of 1945 that the Japanese had achieved an alarming buildup of forces in southern Japan--precisely in the areas American forces were scheduled to invade late in the year. Thus, despite the peace initiative, Japan was preparing to fight to the bitter end.

EG:230-L6a-P6a

An Army cryptanalyst deciphers a Japanese diplomatic message, circa 1945.
Courtesy of the National Security Agency

EG:240-L1
main title

THE SOVIET FACTOR

EG:240-L2
main text

Truman's decision to drop the atomic bomb was based on saving American lives and shortening the war. However, Joseph Stalin's Union of Soviet Socialist Republics was a factor in American calculations regarding the new weapon and the Japanese. The alliance of the United States, the British Commonwealth, and the Soviet Union, which was forged only after Germany

attacked Russia in 1941, was one of convenience. Suspicion between West and East remained high, despite positive feelings evoked by their common struggle against the Nazis.

In the spring of 1945, tensions were rising over the Soviet imposition of puppet governments in Eastern Europe after the German defeat. There was also the prospect of similar Soviet gains in the Far East. While U.S. military leaders argued that Soviet entry into the Pacific war must precede the U.S. invasion of Japan, some of Truman's civilian advisers began to question its desirability.

EG:240-L2a-P2a

Soviet tanks in a Berlin victory parade, August 1945.
Courtesy of the Bundesarchiv

EG:240-L2b-P2b
bio. picture
208-PU189V-5

Joseph V. Stalin (1879-1953) became the undisputed leader of the Soviet Communist Party and dictator of the Soviet Union during the late 1920s. His bloody purges cost millions of lives. He acquired a new international importance as a result of his country's decisive contribution to the defeat of Nazi Germany in World War II. Stalin authorized a Soviet atomic bomb project in 1942, but did not give it the highest priority until after the United States' atomic bombings of Japanese cities in August 1945.
Courtesy of the National Archives

EG:240-L3

THE SOVIET UNION AND THE PACIFIC WAR

While the Soviet Union was battling Germany, and Japan was fighting to preserve its conquests in Asia and the Pacific, neither power had an interest in disturbing their mutual peace. But as the defeat of the Nazis approached, the United States wanted the Soviets to attack and pin down the huge Japanese army in China, which would prevent it from assisting the defense of the Japanese home islands. At the Yalta conference in February 1945, Stalin promised to enter the Pacific war two to three months after Germany's surrender.

During the spring of 1945, some American leaders began to doubt the wisdom of this policy. The U.S. Navy's blockade of Japan was nearly complete by April, making a troop transfer from China more difficult. Key advisers to President Truman also began to worry about the spread of Communism in post-war Asia. Indeed, Stalin was interested in joining the Pacific war so that he could bring China and Korea into the Soviet sphere and share in the occupation of Japan.

EG:240-L3a-P3a
(Map needed of North China, Eastern USSR, Korea and Japan, as of spring 1945.)

The northwest Pacific theater, spring 1945.

EG:240-L3b-P3b

An exhausted President Roosevelt sits between Prime Minister Churchill and Marshal Stalin at the Yalta Conference in south Russia, February 1945.
Courtesy of the National Archives

EG:240-L4

THE SOVIET UNION AND THE ATOMIC SECRET

The Manhattan Project was a joint undertaking of the United States, Great Britain, and Canada, although dominated by American resources and personnel. President Roosevelt and British Prime Minister Churchill decided to conceal the project from Stalin, hoping to delay Soviet acquisition of nuclear weapons. However, Soviet spies sent atomic secrets back to Moscow.

As the time to test and use the bomb approached, the Western Allies had to decide whether to tell Stalin before dropping it on Japan and what post-war nuclear policy should be. Some scientists and advisers, concerned with America's postwar position after the use of the weapon, urged that atomic weapons be placed under "international control" so that a nuclear arms race might be avoided. Others saw advantages in an American or Anglo-American nuclear monopoly.

EG:240-L4a-P4a

The 1944 Los Alamos identification photo of Dr. Klaus Fuchs, a German refugee scientist and British citizen who passed Manhattan Project secrets to the Soviet Union.
Courtesy of the Los Alamos National Laboratory

EG:240-L5

"PERSUADING RUSSIA TO PLAY BALL"

As tensions grew in spring 1945 over the Soviet domination of Poland and other Eastern European countries, Secretary of War Stimson hoped that American possession of the atomic bomb might help make the Soviets "play ball" in Europe and elsewhere.

But it was Truman's new Secretary of State, James "Jimmy" Byrnes, who, more than anyone else, recommended a hard line against Stalin's demands for concessions in Europe and Asia.

EG:240-L5a-P5a
[LABEL DELETED]

EG:240-L5b-S5b
(facsimile)

This facsimile of a page from Secretary Stimson's diary for May 15, 1945, shows that he discussed the impact of "the S-1 secret"--the atomic bomb--on relations with the Soviets in a meeting with Acting Secretary of State Grew and Navy Secretary Forrestal.
Courtesy of Yale University

EG:240-L5c-P5c
picture from L5a

James F. Byrnes (1879-1972) with President Truman on the day he was sworn into office as Secretary of State, July 5, 1945. Byrnes was one of the most powerful figures in the Roosevelt and Truman administrations. As a U.S. senator from South Carolina, he proved instrumental in the passage of Roosevelt's "New Deal." He became a U.S. Supreme Court justice in 1941, but resigned a year later to lead the war mobilization effort. He was so influential in domestic policy that the press nicknamed him "Assistant President." Truman, cast into the presidency with almost no foreign policy experience, sought out Byrnes as an adviser and as Secretary of State.
Courtesy of the Bettmann Archive

EG:240-L5d-S5d

Print of the White House inscribed: "For James F. Byrnes, his home sweet home, from the contractor, Franklin D. Roosevelt." This inscription probably refers to Roosevelt's interest in having Byrnes as his running mate in 1944. Truman was eventually chosen instead.
Lent by Clemson University

EG:250-L1
main title

SELECTING THE TARGET

EG:250-L2
main text

While plans for the invasion of Japan were going ahead, preparations were also being made for the military deployment of the atomic bomb.

Target recommendations were made by the Target Committee, controlled by General Groves and his Manhattan Project staff. Among its primary concerns was showing off the bomb's power to the maximum effect and making the greatest impression possible on the Japanese with the goal of shocking Japan into surrender. To ensure an accurate drop, the committee insisted that the bombings occur in daylight and clear weather. They also decided that the targets would be cities with military significance that were undamaged by conventional bombing and had geographical layouts that would maximize damage from the bomb's blast wave.

By the end of May 1945, the committee selected, in order of priority, Kyoto, Hiroshima, Kokura, and Niigata. The Army Air Forces were ordered not to firebomb these cities.

EG:250-L2a-P2a

Major General Groves inspects a map of Japan in this picture released to the press after the first atomic bombing, on August 6, 1945.
Courtesy of the National Archives

EG:250-L2b-P2b
(Map of Japan needed with Kyoto, Hiroshima, Kokura, Niigata and Nagasaki singled out.)

The targets chosen for the atomic bomb. Kyoto was later eliminated from the list and Nagasaki added.

EG:250-L3

GROVES, STIMSON, AND THE SAVING OF KYOTO

Kyoto, the top choice of Major General Groves' Target Committee, was never bombed. On May 30, 1945, Groves met Secretary of War Stimson, who asked for the target list. Stimson vetoed Kyoto because it "was the ancient capital of Japan, a historical city, and one that was of great religious significance to the Japanese." He had visited the city several times and was "very much impressed by its ancient culture." Stimson was concerned that destroying Kyoto would permanently embitter the Japanese against the United States and increase Soviet influence in Japan.

Groves argued that Kyoto had a population of over a million, did much war work, and had a highly suitable geography for the bomb. He fought for two months to reinstate the city to the target list, but to no avail. In July the port city of Nagasaki was added instead.

EG:250-L3a-S3a
[LABEL DELETED]

EG:250-L4

"WE COULD NOT GIVE THE JAPANESE ANY WARNING"

The question of whether to drop the first atomic bomb on Japan without warning was left to another group, the Interim Committee on post-war atomic policy. On May 31, 1945, Secretary Stimson chaired a meeting of this group, which included Truman's personal representative, James Byrnes, and the committee's scientific advisers, headed by Dr. Robert Oppenheimer.

The committee members briefly discussed warning the Japanese to evacuate the target, or arranging a demonstration of the bomb for delegates from Japan. However, they rejected those ideas because they reasoned that the Japanese, if warned, might try to shoot down the bomber or move prisoners of war into the target area, and because the demonstration bomb might fail to explode.

Others who knew about the atomic bomb were also thinking of ways to demonstrate it. For example, Manhattan Project physicist Edward Teller proposed exploding the first bomb high over Tokyo Bay at night, without any warning, to shock the Japanese leaders. But prior to the first test, the scientists had generally underestimated the power of the bomb, and it was not clear that any non-lethal demonstration would sufficiently impress the Japanese.

EG:250-L4a-S4a
quote underlined in the original document

A page from the official minutes of the Interim Committee meeting of May 31, 1945. The underlined passage gives the committee's recommendation regarding the use of the bomb: "Secretary [Stimson] expressed the conclusion, on which there was general agreement, that we could not give the Japanese any warning, that we could not concentrate on a civilian area; but that we should seek to make a profound psychological impression on as many inhabitants as possible. At the suggestion of Dr. Conant the Secretary agreed that the most desirable target would be a vital war plant employing a large number of workers and closely surrounded by workers' houses."

Lent by the National Archives

EG:250-L5

NUCLEAR VERSUS CONVENTIONAL BOMBING

Many of the decision-makers knowledgeable about the bomb did not consider it drastically different from conventional strategic bombing, which had already killed hundreds of thousands of civilians throughout the world. Nor was there any guarantee that the bomb would automatically end the war.

When Oppenheimer suggested on May 31 that several atomic attacks be carried out on the same day to shock the Japanese, Groves opposed the idea on the grounds that "the effect would not be sufficiently distinct from our regular air force [bombing] program." At that time, the firebombing of Japan had already devastated many cities. The explosive power of the first atomic bombs was also estimated at only 1/10 to 1/2 of what it turned out to be, and no one had a clear impression of the heat and radiation effects.

EG:250-L5a-P5a

At the end of the war little remained standing in the firebombed sections of Tokyo.

EG:250-L6

SCIENTISTS PETITION THE PRESIDENT

Leo Szilard and other Manhattan Project scientists felt that the bomb project had been a response to a threat from Germany. Attacking Japan without first providing a warning and an opportunity to surrender, they felt, would weaken "our moral position...in the eyes of the world." They were equally concerned that using the bomb without telling the Soviets first would increase the chances of an uncontrolled nuclear arms race after the war.

The Chicago group wrote a report, sent petitions to President Truman, and approached Truman's adviser and choice for Secretary of State, James Byrnes. But the President did not receive the petitions before the bomb was used, because all the scientists' initiatives were obstructed by Byrnes, Groves, Oppenheimer, and others.

EG:250-L6a-P6a

Scientists of the University of Chicago Laboratory in 1946. At left in the front row is Nobel Prize-winning physicist Dr. Enrico Fermi; third from right is Dr. Leo Szilard. Fermi, who had moved to Los Alamos in 1944, did not agree with Szilard's efforts to question the policy of use without warning.
Courtesy of the National Archives

EG:250-L6b-S6b

One of the original petitions to President Truman by Manhattan Project scientists, with the signature of Leo Szilard at lower left.
Lent by the National Archives

EG:260-L1
main title

THE INVASION OF JAPAN: A GIANT OKINAWA?

EG:260-L2
main text

American planning for an invasion of Japan continued in spring 1945. The Manhattan Project was so secret that most military planners were unaware of it, and the effect of the new weapon on the Japanese was uncertain. Under the leadership of Army Chief of Staff Gen. George C. Marshall, the War Department continued to assume that an invasion would be needed to force Japan to surrender.

Not everyone in the U.S. military agreed. Some Navy officers believed that the blockade could force Japan to quit the war, while many in the Army Air Forces thought firebombing could force surrender by itself or in conjunction with the blockade. Both groups pointed to the terrible casualties of the Okinawa campaign--48,000 American dead and wounded--in arguing against an invasion. General Marshall and his staff also feared heavy losses but argued that, as with Germany, only the occupation of the enemy's territory and capital would end the war.

EG:260-L2a-P2a

The U.S. Joint Chiefs of Staff in World War II: clockwise from left, Adm. Ernest J. King, Chief of Naval Operations; Gen. George C. Marshall, Army Chief of Staff; Adm. William D. Leahy, Chief of Staff to the President; and Gen. Henry H. "Hap" Arnold, Commanding General of the Army Air Forces.
Courtesy of the National Archives

EG:260-L3

"OPERATION DOWNFALL": THE INVASION PLAN

On June 18, 1945, President Truman gave preliminary approval to the invasion plans presented by General Marshall. "Operation Downfall" would have two parts. On or about November 1, 1945, 767,000 Marines and Army troops would begin landing on the beaches of the southern island of Kyushu in "Operation Olympic." The invasion fleet would be larger than that of the landings in Normandy in June 1944. The objective of this operation would be to occupy the southern half of Kyushu and use it as an air base and staging area for a second invasion.

If the Japanese did not surrender, "Operation Coronet"--the landings on the main island of Honshu--would begin on or about March 1, 1946. A huge force of 28 divisions, twice the size of "Olympic," would eventually come ashore on beaches near Tokyo. Some strategists assumed that it could take until the end of 1946 to occupy the capital and enough of Honshu to force Japan to surrender.

EG:260-L3a,b-P3a,b

Planning maps of the invasion beaches for operations "Olympic" and "Coronet."

EG:260-L3c-P3c
bio. picture

Gen. **George C. Marshall (1880-1959)** played a critical role in expanding the small, poorly armed U.S. Army of 1939 into the massive, effective force of 1942-1945. During the war he was Chief of Staff of the Army, a key strategist in Allied plans on all fronts, and an important adviser to Roosevelt and Truman on the Manhattan Project. After his retirement from the Army, he became Secretary of State in 1947. He won the Nobel Peace Prize in 1953 for the Marshall Plan, which helped revive the economies of Western Europe.
Courtesy of the National Archives

EG:260-L4

INVASION OF JAPAN--AT WHAT COST?

Estimates of the number of American casualties--dead, wounded, and missing--that the planned invasion of Japan would have cost varied greatly. In a June 18, 1945, meeting, General Marshall told President Truman that the first 30 days of the invasion of Kyushu could result in 31,000 casualties. But Admiral Leahy pointed out that the huge invasion force could sustain losses proportional to those on Okinawa, making the operation much more costly.

Had the Kyushu invasion failed to force Japan to surrender, the United States planned to invade the main island of Honshu, with the goal of capturing Tokyo. Losses would have escalated.

After the war, Truman often said that the invasion of Japan could have cost half a million or a million American casualties. The origin of these figures is uncertain, but Truman knew that Japan had some two million troops defending the home islands. He believed, along with the many Americans who would have had to invade Japan, that such a campaign might have become, in his words from June 18, 1945, "an Okinawa from one end of Japan to the other." Added to the American losses would have been several times as many Japanese casualties--military and civilian. The Allies and Asian countries occupied by Japan would also have lost many additional lives.

For Truman, even the lowest of the casualty estimates was unacceptable. To prevent an invasion and to save as many lives as possible, he chose to use the atomic bomb.

EG:260-L4a-P4a (old)
NOTE: Photo of U.S. Marine dead on Tarawa moved to section EG:000.]

EG:260-L4a-P4a

Wounded Marines being treated on Iwo Jima, February 1945.
Courtesy of the National Archives

EG:260-L4b-P4b

Japanese students help to fortify the home islands of Japan against invasion, May 1945.
Courtesy of "Asahi Shimbun"

EG:260-L4c-S4c

These pages from the original minutes of the June 18, 1945, meeting between President Truman and the Joint Chiefs of Staff discuss the American losses expected in "Operation Olympic." On the second page, General Marshall endorses a figure of about 31,000 casualties for the first 30 days of the Kyushu invasion--the same as for the invasion of the main Philippine island of Luzon. On the third page, Admiral Leahy asks whether this figure is too low, based on the bloody battle for Okinawa.
Lent by the National Archives

EG:260-L5

HINDSIGHT: WAS AN INVASION INEVITABLE WITHOUT THE BOMB?

President Truman believed that an invasion of Japan would be necessary if the atomic bomb did not work. In hindsight, however, some have questioned whether an invasion was inevitable.

Based on information available after the war, the U.S. Strategic Bombing Survey concluded in 1946 that, "Certainly prior to 31 December 1945, and in all probability prior to 1 November 1945, Japan would have surrendered even if the atomic bombs had not been dropped, even if Russia had not entered the war, and even if no invasion had been planned or contemplated." The U.S. naval blockade was strangling Japan, which depended totally on imported fuel, while conventional bombing was destroying its infrastructure.

However, other postwar observers, including Secretary Stimson, doubted that Japan's rulers would have accepted unconditional surrender if the home islands had not been invaded or if the atomic bomb had not been dropped. In any case, many American lives would have been lost by November 1, 1945, and after that date, the invasion of Kyushu would have been in full swing.

EG:270-L1
unit main title

"I AM BECOME DEATH, DESTROYER OF WORLDS"

EG:270-L2
unit main text

At 5:29:45 a.m., July 16, 1945, a blinding flash and unbelievable heat seared the New Mexico desert--the world's first nuclear explosion. Codenamed "Trinity," the Manhattan Project's test of the plutonium implosion bomb was a stunning success. The explosion equaled about 20,000 tons of TNT, many times what some had expected. General Groves and his project leaders were jubilant and relieved. But for some, the spectacle also cast an ominous shadow. Los Alamos scientific director Dr. Robert Oppenheimer later said he thought of the lines from the Hindu scripture, the Bhagavad Gita: "I am become Death, Destroyer of Worlds."

EG:270-L2a-P2a

Manhattan Project scientists prepare to raise the bomb to the top of the test tower at Alamogordo, New Mexico, July 1945.
Courtesy of the National Archives

EG:270-L2b-P2b

The fireball of the Trinity test at 0.053 seconds after ignition.
Courtesy of the National Archives

EG:270-L2c-P2c
color photo from Segrè

The rising mushroom cloud.

EG:270-L2d,e-S2d,e

Jumpsuit and goggles worn by Manhattan Project physicist Dr. Emilio Segrè at the Trinity test.

EG:270-L2f

"I was flabbergasted by the new spectacle. We saw the whole sky flash with unbelievable brightness in spite of the very dark glasses we wore.... For a moment I thought the explosion might set fire to the atmosphere and thus finish the earth, even though I knew that this was not possible."
Dr. Emilio Segrè, Manhattan Project physicist and Nobel Prize winner

EG:270-L2g-P2g

Dr. Segrè wearing the jumpsuit and goggles at the Trinity site.

EG:270-L2h-S2h

Welder's glass used by Dr. Segrè to watch the explosion.

EG:270-L2i-S2i

Identification card of Dr. Segrè issued specifically for the highly secret Trinity test site.
All objects from Dr. Segrè lent by the National Museum of American History

EG:280-L1
unit main title

THE POTSDAM CONFERENCE AND THE BOMB

EG:280-L2
unit main text

In mid-July 1945, as Manhattan Project scientists prepared for the world's first nuclear explosion, Allied leaders were assembling outside Berlin for the Potsdam Conference. The conference was called to discuss the peace settlement in Europe and to issue a surrender ultimatum to Japan.

President Truman had delayed the conference so it would take place at the time the bomb was to be tested. At Potsdam he gave final verbal approval for dropping the atomic bomb if Japan rejected the ultimatum.

EG:280-L2a-P2a

Secretary of State Byrnes and President Truman cross the Atlantic on the cruiser USS Augusta. July 1945.
Courtesy of the Bettmann Archive

EG:280-L3

TRUMAN TELLS STALIN ABOUT THE BOMB

Coded telegrams about the success of the atomic test reached Secretary of War Stimson at Potsdam within hours. But it was only after Truman, Stimson, and Byrnes saw General Groves' detailed report about Trinity on July 21, that they really understood how powerful the new weapon was.

On July 24, Truman mentioned to Stalin as casually as possible that the United States now had "a new weapon of unusual destructive force." According to Truman, Stalin did not react, but merely stated that he hoped the Americans would make "good use of it against the Japanese." Truman and his entourage were not sure the Soviet dictator had even understood, but, because of his Manhattan Project spies, Stalin knew that Truman was referring to the atomic bomb.

EG:280-L3a-P3a

Prime Minister Churchill, President Truman, and Marshal Stalin at the Potsdam Conference, July 1945.
Courtesy of the National Archives

EG:280-L3b-S3b

President Truman's Potsdam diary for July 25, 1945, alludes to General Groves' report on the Trinity test. Key passages show that Truman was troubled by the power of the new bomb:

"We have discovered the most terrible bomb in the history of the world. It may be the fire destruction prophesied in the Euphrates Valley Era, after Noah and his fabulous Ark.

"...I have told Sec. of War Stimson to use it so that military objectives and soldiers and sailors are the target and not women and children. Even if the Japanese are savages, ruthless, merciless and fanatic, we as the leader of the world for the common welfare cannot drop this bomb on the old Capitol [Kyoto] or the new [Tokyo].

"He and I are in accord. The target will be a purely military one and we will issue a warning statement asking the Japs to surrender and save lives."

Lent by the Harry S. Truman Library

EG:280-L4

"FINI JAPS WHEN THAT COMES ABOUT"

During the Potsdam Conference, Stalin promised to declare war on Japan by August 15. Truman wrote in his diary on July 17, "Fini Japs when that comes about." But a day later he wrote, "Believe Japs will fold up before Russia comes in. I am sure they will when Manhattan appears over their homeland."

Stalin and Truman also discussed Tokyo's new diplomatic approaches to Moscow in July, which indicated Emperor Hirohito's search for a compromise peace that might allow Japan to retain some of its overseas territories. But since Stalin wanted to enter the Pacific war, he did not play up the new messages. Truman and Secretary of State Byrnes already knew about these Japanese initiatives from American intelligence reports, but found nothing new and so dismissed them.

EG:280-L4a-P4a

Courtesy of the Bettmann Archive

EG:280-L5

AN ULTIMATUM TO JAPAN

On July 26, 1945, the three largest Allied powers at war in the Pacific, the United States, Britain, and China, issued the Potsdam Declaration, which demanded that the Japanese Empire surrender immediately or face "prompt and utter destruction." Because of potential Allied and domestic opposition to anything less than "unconditional surrender," the declaration contained no reference to retaining Emperor Hirohito on the throne. Nor, for reasons of military secrecy, did it contain any direct reference to the atomic bomb or Soviet entry into the war.

The declaration did not change the position of the Japanese government. The military's reaction was especially unfavorable. On July 28, Prime Minister Suzuki announced that his government would ignore ("mokusatsu") the declaration. As a result, the United States used the atomic bomb.

EG:280-L6

THE OFFICIAL ORDER TO DROP THE BOMB

During the spring and summer of 1945, Truman had verbally confirmed proposals presented to him by Stimson and Byrnes to use the bomb. According to General Groves, Truman's decision "was one of noninterference--basically a decision not to upset existing plans."

Lt. Gen. Carl Spaatz, the commander of the newly created U.S. Army Strategic Air Forces in the Pacific, requested a written order authorizing the use of the bomb. After long-distance communications with Stimson, who was with Truman in Potsdam, Gen. Thomas Handy, the Acting Army Chief of Staff in Washington, issued the order to Spaatz on July 25. President Truman could have reversed the order had Japan accepted the Potsdam Declaration.

EG:280-L6a-P6a

Gen. Carl Spaatz (lighting cigarette) arrives on Guam, July 29, 1945, to take command of strategic air forces in the Pacific. With him are (left to right) Lt. Gen. Nathan Twining, Maj. Gen. Curtis LeMay, and Lt. Gen. Barney Giles.

EG:280-L6b-S6b

A copy of the official order to drop the bomb.
Lent by the Library of Congress

EG:300-L1
Unit Main Title

"ENOLA GAY": THE B-29 AND THE ATOMIC MISSIONS

EG:300-L2
Unit Main Label

August 6, 1945, 2:00 a.m., Tinian Island, the Central Pacific. Bathed in floodlights, the B-29 Enola Gay awaits the start of its historic mission: to drop the first atomic bomb on Japan. Gen. Leslie Groves, the head of the Manhattan Project, had warned the Enola Gay's commander, Col. Paul Tibbets, to expect "a little publicity," but Tibbets and his crew are surprised by the scene on the tarmac. Movie cameramen and photographers surround the crew.

Groves is determined that this moment in history will not go unrecorded. Soon, at 2:45 a.m., the aircraft takes off.

The beginning of the Enola Gay's mission was the culmination of over a year's work. The U.S. Army Air Forces had modified its most advanced bomber, the B-29, and had created a new, special military unit for delivering atomic bombs. This unit's mission was so secret that, with few exceptions, the nature of its weapons was concealed even from its members.

EG:300-L2a-P2a
(Crew picture to be used as cut-out in front of EG's nose.)

EG:310-L1
Main Title

THE B-29: A $3 BILLION GAMBLE

EG:310-L2
Main Text

The Boeing B-29 Superfortress was conceived, designed, and rushed into production as a very-long-range conventional bomber. Of the more than 3,700 B-29s built during the war, only 15, specially modified, were sent to the Pacific as potential atomic bombers.

The B-29 was the most technologically complex mass-production aircraft of World War II. This complexity represented a significant gamble: unforeseen technical problems during flight testing could have endangered the B-29 development and production program, which eventually cost over $3 billion--$1 billion more than the Manhattan Project. It was the largest commitment of resources to a single military aircraft up to that time.

In addition, the B-29, which was designed in response to lessons learned in the European theater, was rushed into production before it could be service tested in the Pacific.

EG:310-L2a-P2a
background photograph of B-29s in formation
NASM photograph
3A 38442
(no label needed)

EG:310-L3

DESIGNING A SUPERBOMBER

In the wake of Nazi Germany's quick victory over Poland in 1939, Maj. Gen. Henry H. "Hap" Arnold, Chief of the Army Air Corps, asked the War Department for authority to define requirements for a very-long-range heavy bomber. After drafting performance requirements for the new bomber, the Air Corps in January 1940 requested design proposals from Boeing, Lockheed, Douglas, and Consolidated. In September 1940, Boeing received a $3.6 million contract to build a full-size wooden mockup and two prototypes. The new bomber received the designation XB-29.

EG:310-L3a-P3a
photograph

Boeing conceptual drawing of 1938, which became the basis for the company's 1940 bomber proposal.
Courtesy of the Boeing Company Archives

EG:310-L3b-S3b
model (if available)

B-29 wind tunnel model.

EG:310-L4

STRETCHING TECHNOLOGICAL LIMITS

To meet the Army Air Forces' performance requirements for the new bomber while working under a strict schedule, Boeing engineers stretched existing aircraft technology to the limit. An aerodynamically efficient wing, flush-riveted skin, and tight-fitting engine cowlings reduced drag (air resistance), allowing the B-29 to carry a larger bomb load higher, faster, and farther than earlier bombers. For the first time on a heavy bomber, defensive machine guns were installed in remotely controlled turrets. Over 125 electric motors powered the aircraft's internal equipment.

The B-29's complexity was both a major technological achievement and a gamble for Boeing and the Army Air Forces. As Boeing began building the first prototype B-29, the program began to suffer numerous delays. Over 900 changes were to be made to the initial design.

EG:310-L4a-P4a

The prototype XB-29 traveling under guard from the Boeing factory in Seattle to the test field before its first flight, July 1942.
Courtesy of the Boeing Company Archives

EG:310-L4b-P4b

The XB-29 takes to the air for the first time, September 21, 1942.
Courtesy of the Boeing Company Archives

EG:310-L5

PRESSURIZED CREW COMPARTMENTS

For the first time on a combat aircraft, heated, pressurized compartments allowed crewmen to fly at high altitudes without bulky clothing and oxygen masks. A pressurized tunnel ran above the aircraft's two bomb bays and connected the fore and aft compartments. The tail gunner's pressurized position remained isolated from the other compartments.

EG:310-L5a-P5a
graphic from Time-Life

B-29 internal systems and crew stations.

EG:310-L5b-S5b,c
[LABEL DELETED]

EG:310-L6

ENGINE PROBLEMS

The B-29's complex Wright Cyclone R-3350 engines caused problems from the beginning of flight testing. After several near-accidents, an engine fire caused the second prototype to crash, killing Boeing's chief test pilot Eddie Allen, 10 others on board, and 20 on the ground. The crash precipitated a crisis for the B-29 program, prompting a Senate investigation and tighter Army Air Forces control of the project's engineering and flight testing.

Improved quality control, a redesigned engine cowling, improved lubrication, and better cooling helped to reduce the R-3350's tendency to catch fire. The fire problem persisted well into the B-29's service life, but by 1945 the R-3350 had become a very reliable engine.

EG:310-L6a-P6a
photograph (could possibly substitute a photo of one of the Enola Gay's engines here)

Installation diagram for the Wright Cyclone R-3350 18-cylinder radial engine.
Courtesy of the Boeing Company Archives

EG:310-L6b-S6b

One of the Enola Gay's four 5-meter (16-foot, 8-inch) diameter Curtiss Electric propellers.

EG:310-L7

SUPERFACTORIES FOR A SUPERBOMBER

The U.S. Army Air Forces ordered over 1,600 B-29s even before the first aircraft had flown. This order far exceeded the capacity of the massive B-29 factory Boeing was building at Wichita, Kansas. To meet the demand, fabrication of some components and assembly of airframes was contracted out.

Chrysler Corporation produced the bomber's engines at a huge plant in Chicago. General Motors' Fisher Division manufactured forgings, castings, stampings, and various B-29 subassemblies. Bell Aircraft Company built bomb bays, fuselages, and eventually entire aircraft in Marietta, Georgia. Boeing later established another B-29 plant in Renton, Washington, and the Martin Company erected one in Omaha, Nebraska.

The first production B-29s rolled off the assembly lines during July 1943. By war's end, about 3,700 aircraft and 30,000 engines had been produced.

EG:310-L7a-P7a
map

Sites of principal B-29 and R-3350 engine subcontractors.

EG:310-L7b-P7b

A B-29 rolls out of Boeing's Wichita, Kansas, plant, one of four massive factories devoted to production of the Superfortress, 1944.
Courtesy of the Boeing Company Archives

EG:310-L7c-P7c

Workers install control cables in a bomb bay at Boeing's Renton, Washington, factory, 1944.
Courtesy of the Boeing Company Archives

EG:310-L7d-P7d (additional photographs from the various production facilities may be added here.

Production of the R-3350 engine at Chrysler's Dodge factory in Chicago, 1943.
Courtesy of Chrysler Corporation

EG:311-L1

CREATING A NEW AIR FORCE

Under pressure from President Roosevelt to begin bombing Japan, General Arnold activated the first B-29 combat command, the XX Bomber Command, in November 1943, and its parent organization, the Twentieth Air Force, in April 1944. Arnold selected Brig. Gen. Kenneth Wolfe to head the XX Bomber Command, which was expected to conduct missions against Japan from bases in China. Unlike all the other Army Air Forces, the Twentieth Air Force would be directly under the command of the Joint Chiefs of Staff with Arnold as their executive agent.

EG:311-L1a-P1a
photograph

Brig. Gen. Kenneth B. Wolfe, first commander, XX Bomber Command, 1943.

EG:311-L2

THE BATTLE OF KANSAS

Because of production delays, few B-29s were available when training began in late 1943. Many crews had to train in older heavy bombers instead. By the end of the year, the average crew had less than 30 hours of flight time in the airplane.

To ease the B-29 shortage, General Arnold ordered workers to be diverted from other facilities to Kansas, where they accelerated Superfortress production. During the hectic month that followed, which became known as the "Battle of Kansas," the workers completed just enough B-29s to equip the first combat units. Although the vanguard squadrons of the XX Bomber Command departed at nearly full strength, the crews left for the war with much still to learn about their complex, temperamental bombers.

EG:311-L2a-P2a
photograph

Crewmen train in a high-altitude chamber, Smoky Hill Army Air Field, Kansas, 1943.
Courtesy of the Boeing Company Archives

EG:311-L2b-P2b
photograph

B-29s undergoing modification at Wichita during the "Battle of Kansas," March 1944.

EG:320-L1
Main Title

BOMBING JAPAN

EG:320-L2

A DIFFICULT BEGINNING

Early bombing raids against targets in Japanese-held China and Southeast Asia were conducted by the XX Bomber Command from air bases in India and China. The first attack on Japan since the early 1942 Doolittle Raid was staged from Chengtu, China, on June 15, 1944. The targets were coke furnaces and steel plants in the city of Yawata.

The B-29 crews operating from China faced enormous obstacles. Japanese forces blocked overland routes to China, so all food, fuel, bombs, and ammunition had to be flown to the base over the Himalaya Mountains from India. Three or four supply flights were needed for every bomber mission flown. Bomber crews taking off from Chinese bases had to fly 5,000-kilometer (3,200-mile) round-trips to reach those few targets in western Japan within their range. The strain of these long flights at high altitude revealed the weaknesses of the aircraft.

EG:320-L2a-P2a
photograph

Thousands of laborers constructed the XX Bomber Command's airfield at Chengtu, China, in 1944 without the aid of machinery.

EG:320-L2b-P2b
photograph

A B-29 takes off from the airfield at Chengtu, China, passing the wreck of a B-29 that crashed on takeoff during an earlier mission, 1944.

EG:320-L3

BULLDOZERS BEFORE BOMBERS:
CREATING BASES IN THE CENTRAL PACIFIC

The "Air Plan for the Defeat of Japan," drawn up in 1943, called for most of the strategic bombing campaign to be conducted by the newly formed XXI Bomber Command from bases in the central Pacific. After the Marianas Islands were captured in the summer of 1944, Army engineers and Navy Seabees moved in and began constructing the five largest air bases ever built up to that time: one on Saipan and two each on Tinian and Guam. Each was capable of handling several hundred B-29s.

The airfields were finished--and the three islands totally transformed--by the spring of 1945. This monumental accomplishment set the stage for the last great air campaign of World War II.

EG:320-L3a-P3a

Brig. Gen. Haywood S. Hansell Jr., first commander of the XXI Bomber Command, 1944.

EG:320-L3b-P3b
map

B-29 bases in the Marianas.

EG:320-L3c-P3c
(other photos of base construction, etc.,
may be added)

Airfield construction, North Field, Guam, 1944.

EG:320-L4

INTO ACTION FROM THE MARIANAS

Operations from Saipan began in November 1944, reducing the length of a round-trip flight to Tokyo to 4,800 kilometers (3,000 miles) and bringing most significant Japanese targets within range.

Still, problems remained. Brigadier General Hansell, commander of the XXI Bomber Command, wanted to continue the high-altitude, precision-bombing techniques first tried in Europe. But crews attacking targets in Japan from 9,000 meters (30,000 feet) encountered powerful and previously unknown winds of over 320 kilometers (200 miles) per hour--the jet stream. These winds either pushed bombers along at ground speeds approaching 800 kilometers (500 miles) per hour or slowed them nearly to a standstill, making accurate bombing almost

impossible, exposing them to enemy attack and placing great strain on their engines. Even at lower altitudes, unpredictable weather often obscured targets. By the end of 1944, after seven raids on Japanese aircraft factories and steel plants, only about 1 bomb in 50 had fallen within 300 meters (1,000 feet) of its target.

EG:320-L4a-P4a
photograph

The Kawasaki aircraft factory near Kobe under attack on January 15, 1945. XXI Bomber Command B-29s rarely attained this degree of accuracy during high-altitude daylight attacks.

EG:321-L1

CITIZEN AIRMEN

As the U.S. Army Air Forces expanded dramatically during World War II, it drew men from every geographical region who were motivated by patriotism, a sense of wartime duty, or the draft. Flight pay, the prospect of rapid promotion, and the glamour of aviation attracted others.

Although many senior officers came from combat units, most B-29 crewmen had not yet been overseas when they arrived at the great airfields in the Marianas. These citizen airmen faced an enormous responsibility: to take a complex, often unpredictable aircraft into combat halfway around the world and deliver what they hoped would be the knockout blow against Japan.

EG:321-L1a-P1a
photograph

Portrait of a typical B-29 crew: Homer's Roamers, the crew of Aircraft No. 3, 873rd Squadron, 1945. They survived the war.

EG:321-L1b-P1b
photograph

Quonset hut crew quarters on Saipan. Eighteen enlisted crewmen were housed in each hut.

EG:321-L1c-P1c

B-29 crewmen try to relax between missions by playing baseball, 1945.

EG:321-L1d-P1d

Post-mission debriefing, 1945.

EG:321-L1e-S1e,f,g...
(airmen's paraphernalia with I.D. captions)

EG:322-L1

A HAZARDOUS BUSINESS

Although loss rates for American crews bombing Japan never approached those suffered over Germany, crews faced many dangers. Engines sometimes failed on bombers taking off laden with fuel and bombs, leading to fiery crashes. Japanese antiaircraft fire and fighters sometimes posed a serious threat over the target. Nor was abandoning a wounded B-29 over Japan a good idea, since capture could mean execution, frequently by beheading.

Many bombers succumbed to battle damage, lack of fuel, or errors made by fatigued pilots during the 2,400-kilometer (1,500-mile) return flight. Although sea-air rescue units and submarines rescued many downed crews, others disappeared into the Pacific without a trace. By war's end, 417 B-29s had been lost in combat and accidents in Asia and the Pacific, with 3,015 crewmen listed as killed, wounded, or missing.

EG:322-L1a-P1a
photograph 3A-38954

Capt. Walter "Waddy" Young and his crew in front of Waddy's Wagon. All were lost on a January 9, 1945, mission to Musashino.

EG:322-L1b-P1b
photograph

A B-29 pilot shows the strain of combat as his aircraft approaches the target.

EG:322-L1c

"On the long trip to the target, I found it hard to believe that such a serene and tranquil sky could, at any moment, become filled with so much violence and destruction. And in the face of that beauty, the thing that bound us all together...was that we were scared to death."
George S. Gray, B-29 gunner, 500th Bomb Group

EG:322-L1d-P1d
NASM photograph
3A-03326

A Japanese Ki-45 "Nick" fighter passes just beneath the propellers of its target, 1945.

EG:322-L1e-P1e
NASM photograph
3A-03327

A B-29 disintegrates over Japan after suffering a direct hit by antiaircraft fire during a mission in early 1945.

EG:322-L1f-S1f

B-29 crewman's flak jacket and helmet.

EG:322-L1g

"Just after we had opened the bomb bay doors and were on the bomb run, one of the twin-engine fighters came out of the 12 o'clock high...and sliced off McKillip's wing right between engines one and two.... Mac's plane turned over on its back and slowly spiraled down from 18,000 feet. Our tail gunner...saw it hit the ground and explode. No parachutes were observed...[and] the entire crew was instantly killed. Many nights on Tinian, I actually fell off my cot dreaming I was going down with Mac's crew!"
Willis C. Lundahl, B-29 pilot, 504th Bomb Group

EG:322-L1h
[LABEL DELETED]

EG:322-L2

A POLICY OF EXECUTION

The Japanese government announced publicly in 1945 that it would execute any captured Allied flyers. After Iwo Jima, the Japanese ordered that any airmen picked up at sea were to be killed. Commandants of Japanese prisoner-of-war camps were instructed to kill their prisoners if American forces invaded. The sudden Japanese surrender prevented those unnecessary deaths.

EG:322-L2a-P2a

For aircrew, capture meant imprisonment in horrible conditions and even execution. Like this Australian intelligence officer, Allied flyers were sometimes beheaded.
Courtesy of Time-Life, Inc.

EG:322-L2b

"GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
LEGAL SECTION

Tokyo, Japan
APO 5000
26 March 1948
File No. 014.13

Legal Section Informational Summary No. 249
SUBJECT: US vs. Toshio TASHIRO etal

Charged with the responsibility for the murder of 62 captured American fliers who were either slashed, stabbed or burned to death when Tokyo Military Prison was destroyed by fire following a heavy US air raid [May 25-26, 1945], five Japanese war criminals are presently on trial before a Yokohama Eighth Army Military Commission....

The guards, KAMBE, OKUBO, and KAMIMOTO are charged with the outright acts of murder in that they willfully and unlawfully killed 17 prisoners by piercing and cutting them with swords during the time of the fire. TASHIRO, as prison warden, is charged with ordering his subordinates to kill any Americans that might escape from their cells during the air raid.... He specifically ordered his subordinates not to release the Americans, thereby causing the deaths of 45 American prisoners by burning."

EG:322-L3

REDUCING LOSSES

By the spring of 1945, the Twentieth Air Force had established air superiority over Japan. B-29 losses from enemy action had dropped to very low levels on most missions. Still, some bombers continued to be lost during the long return flights.

Emergency airfields constructed on Iwo Jima, roughly halfway between the Marianas and Japan, provided a much needed haven for aircraft unable to limp home. Bases capable of handling B-29s were built on Okinawa after its capture in June 1945, providing more emergency landing strips for crippled aircraft.

EG:322-L3a-P3a
photograph

A flight engineer and pilot monitor dwindling fuel reserves during a mission's return flight.

EG:322-L3b-P3b
photograph

Exhausted from the tension of combat, a crewman naps during the six-hour return trip in the tunnel connecting the forward and aft crew compartments.

EG:322-L3c-P3c
photograph

Lt. Gordon Savage of the 19th Bomb Group crash-landed his flak-riddled B-29 on Iwo Jima after the great Tokyo raid of March 9-10, 1945. All the crew survived.

EG:322-L3d-P3d
photograph

Lt. Holly Anderson inspects the fuselage of his flak-damaged B-29 after landing on Iwo Jima, May 3, 1945.

EG:322-L3e-P3e

Returning from a bombing mission, this crippled Boeing B-29 did not quite make the runway at Saipan. With two engines having failed, it nosed into the sea, trapping three crewmen in the wreckage, who died as a result of the crash.
Courtesy of the U.S. Air Force

EG:322-L3f-P3f

This Boeing B-29 ran out of fuel and crash-landed at Isley Field, Saipan, while returning from a night bombing mission over Tokyo. Although it hit an antiaircraft gun position and crashed into a fuel truck before it slid to a stop, the crew escaped with only minor injuries.
Courtesy of the U.S. Air Force

EG:323-L1

BURNING JAPAN

The poor results achieved by the XXI Bomber Command prompted General Arnold to replace Brigadier General Hansell in January 1945 with Maj. Gen. Curtis E. LeMay, a veteran of the European air campaign and second commander of the XX Bomber Command in China.

Under pressure from Washington to improve results, LeMay changed tactics in March. Instead of high-altitude attacks, he decided to conduct low-altitude incendiary (firebomb) raids at night. Reasoning that dispersed factories could be destroyed and civilian morale shattered by igniting massive fires, LeMay ordered his crews to navigate by radar and bomb entire cities or major sections of cities.

EG:323-L2-S2
incendiary bomb

MODEL M-50 INCENDIARY BOMB

Along with the Model M-69 and M-47 incendiary bombs, the M-50 proved to be an effective weapon for burning Japanese structures. B-29s released bundles of individual M-50s, which burst at a preset altitude and scattered individual bomblets. Although not as effective as the jellied-gasoline-filled M-69, the magnesium-filled M-50 was nearly impossible to extinguish.

EG:323-L2a-P2a
photograph

Loading incendiary bombs into the bomb bay of a XXI Bomber Command B-29, spring 1945.

EG:323-L2b-P2b
NASM photograph
3A-03851

Tokyo aflame following the raid of May 25, 1945.

EG:323-L2c-P2c
photograph

Maj. Gen. Curtis E. LeMay (center) confers with Brig. Gen. Lauris Norstad (left) and Brig. Gen. Thomas Power (right) shortly after Power returned from leading the March 9-10 raid on Tokyo.

EG:323-L3

SYSTEMATIC DESTRUCTION

The firebombing campaign, which began in earnest with the great raid against Tokyo on the night of March 9-10, proved far more devastating than expected. During the next five months, LeMay's bombers razed one half of the total area of 66 cities--burning 460 square kilometers (178 square miles). By the summer of 1945, Japan's productive capacity had been lowered as follows: power generation by 50 percent, oil by 85 percent, and overall industrial production by 60 percent. The destruction was so complete that LeMay warned his superiors that he would run out of targets by September.

Hiroshima, Kokura, Niigata, and Nagasaki were largely spared from the aerial onslaught. The task of destroying them would be given to a unit recently arrived at Tinian's North Field--one trained to drop atomic bombs.

EG:323-L3a-P3a
NASM photograph
3A-03731

Flames consume large sections of Nagoya following a night raid, May 1945.

EG:323-L3b-P3b
NASM photograph
3A-03924

Yokohama burns fiercely after a daylight incendiary attack, June 1945.

EG:323-L3c-P3c
NASM photograph
3A-03492

Incendiary clusters rain down on Kobe, already ablaze from earlier bombing, June 1945.

EG:323-L3d-P3d
NASM photograph
3A-03914

One of the final raids of the war destroyed 99.5 percent of the city of Toyama, August 1945.

EG:330-L1
main title

THE WORLD'S FIRST ATOMIC STRIKE FORCE

EG:330-L2
main text

"Start a program of training crews to drop this bomb, if and when we make it and drop it."
Henry H. "Hap" Arnold, Commanding General, Army Air Forces, to his deputy Lt. Gen. Barney Giles, 1944

By the summer of 1944, Manhattan Project scientists had made significant progress on the atomic bomb. The time had come to create and train a combat unit to deliver the new weapons.

To ensure secrecy, the Army Air Forces created a uniquely organized, self-contained atomic strike force. For eight months, the 509th Composite Group trained in relative isolation for a mission, the details of which were kept secret even from them. Only when the Enola Gay returned safely from its atomic attack on Hiroshima, would the men of this group understand that serving their country had earned them a unique place in history.

EG:330-L2a-P2a
to be selected
[LABEL DELETED]

EG:331-L1

CREATING THE 509TH COMPOSITE GROUP
"Never before and never again would such a group exist."
Brig. Gen. Paul Tibbets, 1993

Almost a full year of planning went into selecting squadrons and a commanding officer for the new atomic strike force. The Army Air Forces chose the squadrons that would form the composite group and the man who would be its commanding officer, Lt. Col. Paul W. Tibbets. The Army Air Forces allowed Tibbets to bring into the group additional airmen with whom he had worked in Europe, Africa, and the B-29 testing program.

EG:331-L2

PAUL W. TIBBETS (1915-)

Paul Warfield Tibbets was an obvious choice to command the 509th. In 1936 he had abandoned his medical education to pursue a career in the U.S. Army Air Corps. By fall 1944, he had acquired extensive combat experience, had led the first U.S. daylight bomber raid over Europe, and had flown Gen. Mark Clark and Gen. Dwight Eisenhower into North Africa. He was also a veteran of the B-29 testing program and one of the most experienced Superfortress pilots.

According to his memoirs, he had "gained a reputation as an independent type of operator. In the European theater, [he] was called on to do things for which no formula or standards had been established." His talent as an innovator would serve him well as commander of the unconventional 509th.

Tibbets was told he would command a unit that would be responsible for dropping an atomic bomb on Germany and Japan. But in 1944 "atomic power" had little meaning. Only after he learned that the atomic bomb would have "an explosive power equal to that of several thousand tons of TNT," did he begin to understand the special significance of his mission.

EG:331-L2a-P2a

Col. Paul Tibbets wearing the Distinguished Service Cross immediately after returning from the Hiroshima mission, August 6, 1945.

EG:331-L2b
free floating quote

"You have to put together an outfit and deliver this weapon. We don't know what it can do.... You've got to mate it to the airplane and determine the tactics, the training, the ballistics--everything. These are all parts of your problem.... If this is successful, you'll be a hero. But, if it fails, you'll be the biggest scapegoat ever."
Maj. Gen. Uzal Ent, Commanding General of the 2nd Air Force, to Lt. Col. Paul Tibbets

EG:331-L3

THE SQUADRONS

B-29 bomb groups comprised three squadrons, plus maintenance and ordnance squadrons. The 509th Composite Group had one bomb squadron, one transport squadron, and dedicated support squadrons under one central command--an unorthodox but necessary strategy for maintaining secrecy.

Maj. Gen. Uzal Ent selected the 393rd Bomber Squadron, then completing its combat training in Nebraska, to serve as the core of the new 509th. The 393rd had expected to move out to the Pacific. Given little information about their transfer, the 393rd viewed their orders with "surprise and disappointment."

EG:331-L3a-P3a
photo of Classen

Lt. Col. Tom Classen, a distinguished combat veteran and experienced pilot, commanded the 393rd during its training and when it was transferred to the 509th Composite Group. He later became 509th deputy commander.

EG:331-L3b-S3b

A-2 leather flight jacket with the insignia of the 393rd, worn by Fred Bock, The Great Artiste pilot on the Nagasaki raid.
Lent by Fred Bock

EG:331-L3c-S3c
Artifact accompanied by looseleaf binder with book pages showing the squadron photos.

This 509th pictorial album was compiled on Tinian immediately after the end of the war.

EG:331-L4

OLD FRIENDS: TIBBETS' PRIVATE AIR FORCE

Faced with training an entirely new group of men, commanding officers often asked to transfer men with whom they had flown in combat. Granting Tibbets' unusual leeway, the Army Air Forces met all his requests.

Tom Ferebee and "Dutch" Van Kirk, who had been the bombardier and navigator in Tibbets' regular crew in Europe, were his first choices. Ferebee recommended James Van Pelt as a first-rate navigator and Kermit Beahan as an accomplished bombadier. Tibbets also selected a number of airmen he had met in the B-29 training program, including pilots Robert Lewis, Charles Sweeney, and Don Albury, gunnery instructor George Robert Caron, and flight instructor Wyatt Duzenbury.

EG:331-L4a-P4a

Left to right: Lt. Col. Tibbets, Lt. van Kirk, Lt. Lockhart, Lt. Ferebee, and the rest of the crew of the B-17 Red Gremlin, England, 1942.
Courtesy of Theodore "Dutch" Van Kirk

EG:331-L4b-S4b
Ferebee's orders

Tom Ferebee's orders to proceed to Wendover, Utah, Army Air Field, where the 509th trained. Ferebee served as the bombardier on the Hiroshima mission.
Lent by Tom Ferebee

EG:331-L4c-P4c

Tom Ferebee recommended Kermit Beahan, bombardier.
Courtesy of Fred Olivi

EG:331-L4d-P4d

James Van Pelt, navigator.
Courtesy of James Van Pelt

EG:331-L4e-P4e

Wyatt Duzenbury "could coax magic out of aero engines," according to Tibbets, 1944.
Courtesy of the National Archives

EG:331-L4f-P4f

Charles Sweeney, 1945.
Courtesy of

EG:331-L4g-P4g
photograph of Albury

Don Albury, according to Tibbets, was "about the most competent twenty-five-year-old I had ever known."
Courtesy of

EG:331-L4h-P4h
photograph of Lewis

Tibbets considered Robert Lewis to be an impulsive young man, but a natural pilot.
Courtesy of Ken Eidnes

EG:331-L4i-P4i

Tibbets' rapport with non-commissioned officer Bob Caron was characteristic of his "independent" interpretation of Air Force protocol.

EG:332-L1

WENDOVER FIELD: "LEFTOVER, USA"

In the fall of 1944, the various squadrons of the newly formed 509th Composite Group met at Wendover Army Field in Utah.
Described as "Leftover Field" by Bob Hope, Wendover was "the end of the world, perfect" according to Tibbets. The base was close to a bombing range, reserved for the 509th's use, and close to Los Alamos, where Manhattan Project scientists were designing the atomic bombs.

Tibbets knew that his men would detest Wendover's primitive conditions and isolation. But he also felt that because the base offered so few distractions, the mission would command their full attention.

EG:332-L1a-P1
map of Utah showing Wendover and relationship to Los Alamos
No label needed

EG:332-L2

ARRIVAL AT WENDOVER

"Don't ask any questions. Don't answer any questions from anybody not directly involved in what we will be doing..... Don't ask what the job is. That is a sure-fire way to be transferred out."
Lt. Col. Paul Tibbets to the 393rd, September 1944

Desert conditions and rudimentary housing welcomed the 509th to Wendover. The FBI and counterintelligence tapped phone calls, censored mail, and used subtle means to remind the unit that they were always under surveillance.

Nothing within sight gave them a clue to why they had been transferred to another stateside base instead of the Pacific. Tibbets told them only that they had been "brought here to work on a very special mission," but did add, "You are going to take part in an effort that could end the war."

EG:332-L2a-P2a

Lt. Jacob Beser at Wendover, May 1945. Beser later recalled, "The place sounded so...awful that there just had to be a good reason for my being there."

EG:332-L2b-P2b
photo of "What you See Here...Stays Here"

This sign greeted servicemen at Wendover.

EG:332-L3

WENDOVER TRAINING

On training flights from Wendover, 509th crews dropped bombs of various shapes and sizes. Some tests included 500- and 2,000-pound bombs. Others involved studies of what we now know as the "Fat Man" bomb. Painted bright orange, these bombs earned the nickname "pumpkins."

These bomb drops provided information for Manhattan Project scientists, who were still developing and testing the ballistics and fusing mechanism of the atomic bombs. Stationed at a safe distance from the aiming point, they filmed and analyzed each bomb's flight pattern and watched to see if the bomb's fusing mechanism worked.

EG:332-L3a-P3a

Manhattan Project scientist and Navy Capt. William "Deak" Parsons helped develop a fusing device that would trigger the atomic bombs to explode at a specified altitude above their targets. He also helped design the casings for the two atomic bombs.

EG:332-L3b-P3b

A "pumpkin" waits to be loaded onto a B-29.
Courtesy of Cheryl Debejare

EG:332-L4

LEARNING TO GET OUT OF THE BOMB'S WAY

Manhattan Project scientists calculated that the bomb's explosion would cause a shock wave powerful enough to destroy an airplane flying too close. To prepare their crews to escape the predicted shock wave, Tibbets and his chief subordinate taught the crews to roll their planes in a steep, diving turn after they dropped their bomb load. They expected their pilots to learn to execute the highly unorthodox maneuver, but did not tell them why it was crucial.

EG:332-L4a-P4a

George "Bob" Caron waves from his tail-gunner's position, Wendover, 1944. Caught by surprise the first time he experienced the escape maneuver, Tibbets' tail-gunner said it felt "like a roller coaster."
Courtesy of Ken Eidnes

EG:332-L5

OFF DUTY

A perfectionist, Tibbets had great expectations for the 509th. Tension levels rose as his officers and enlisted men followed an intensive training schedule, performed unorthodox flying maneuvers, and worked under seemingly excessive security precautions. Hiking in the canyon country surrounding the base relieved the tension.

EG:332-L6

SPECIAL TRAINING: BATISTA FIELD, CUBA

After four months at Wendover, the 509th was becoming restless. Recognizing their growing impatience and desire to get into action, Tibbets sent 10 of his 15 crews to Cuba. He hoped the temporary transfer would give them the opportunity to train in Pacific-like conditions and would relieve tension.

Under James Hopkins, the 509th's chief of operations, the crews carried out long-distance navigational training over water during day and night, and they practiced high-altitude bomb runs. They also resolved many other operational questions.

EG:332-L6a-P6a

A map used by the 509th during training in Cuba.
Courtesy of Charles Levy

EG:333-L1

OVERSEAS: THE 509TH ON TINIAN

During May and June 1945, the 509th Composite Group completed its transfer to its overseas base on the small Pacific island of Tinian. One step closer to the war, the 509th practiced dropping conventional bombs, grew increasingly impatient with security measures, and tried to keep from getting bored while they eagerly awaited the day when they would finally put their training to use.

EG:333-L1a-P1a

The 509th headquarters on Tinian, 1945.

EG:333-L2

TENSION ON TINIAN

By the time the 509th Composite Group arrived, the 313th Bombardment Wing was already well established at Tinian's North Field and had flown dozens of missions over Japan. From the moment Tibbets' crews showed up, rivalries arose between the 313th and the 509th.

On arrival the 509th moved into some of the best facilities on Tinian, which had been vacated by U.S. Navy Seabees. To 313th crews, many question arose. Why had the 509th supplied its own mechanics instead of using the already existing support squadrons? Why did the 509th fly only single-plane strikes? And why did they refuse to divulge information about their mission?

EG:333-L2a-P2a

B-29s of the 313th Bomber Wing fill North Field.

EG:333-L2b-P2b
"Nobody Knows" poem

Envy and curiosity sparked a clerk in base operations to write a poem razzing the inactive and seemingly unimportant 509th. Some of the members enjoyed it and put it in their yearbook.

EG:333-L2c-P2c
cartoon map

Tinian had reminded one New York City-born Seabee of Manhattan Island, so he laid out the streets accordingly. The section reserved for the 509th Composite Group was in the "Columbia University" district.

EG:333-L2d-S2d
[LABEL DELETED]

EG:333-L2e-P2e
Levy's crew in scooter

Members of Fred Bock's crew drove a scooter made by the Seabees from parts of derelict Japanese airplanes.
Courtesy of Charles Levy

EG:333-L3

INTO COMBAT

Training missions began on June 30, focusing on the special tactics for their secret missions. Nearby islands provided targets for the crews in training.

On July 20, 1945, the 509th made its first airstrike on Japan, dropping "Fat-Man"-shaped high-explosive bombs, called "pumpkins." Because of poor weather conditions, however, only five crews were able to bomb their primary targets visually. Four used radar to drop their bombs on secondary targets. Engine failure forced another to jettison its bomb load in the ocean.

The 509th flew three more "pumpkin" missions to Japan. Largely due to variable weather conditions, the results of these missions ranged from "fair to unobserved" to "effective and successful."

EG:333-L3a-P3a

Intelligence officer Hazen Payette, who had served with Tibbets in Europe, briefs crews on Tinian, 1945.
Courtesy of Charles Levy

EG:333-L3b-P3b

Members of the 509th attend target-study classes.
Courtesy of Charles Levy

EG:333-L3c-P3c

Before takeoff, crews invited visitors to the flight line to autograph bombs.
Courtesy of Charles Levy

EG:333-L3d-S3d
map

The Bockscar crew's flights, 1944-45. A "flurry of excitement" accompanied the announcement of the group's first combat mission, during which five crews bombed a Japanese airfield.
Courtesy of Charles Levy

EG:333-L4

SURVIVAL GEAR

The commander of the 313th Bombardment Wing quickly learned that Tibbets' crews "knew more about airplanes and navigation" than his combat veterans. But the 509th had much to learn about air-sea rescue, ditching and bail-outs, dinghy drill, and survival. Each crew member was fitted with a survival vest equipped with items to aid him if he had to abandon his airplane.

EG:333-L4a-S4a

Map of wind and ocean currents.
Courtesy of Richard Nelson

EG:333-L4b-S4b

Pilot's guide to the Pacific.
Courtesy of William "Pappy" Hulse

EG:333-L4c-S4c

Signal mirror.
Courtesy of William "Pappy" Hulse

EG:333-L4d-S4d

Waterproof watch box with compass.
Courtesy of William "Pappy" Hulse

EG:333-L4e-S4e

Collapsible fishing pole.
Courtesy of William "Pappy" Hulse

EG:333-L4f-S4f

Sewing kit and first aid kit.
Courtesy of William "Pappy" Hulse

EG:333-L5

WAITING

As at Wendover, the 509th followed a rigorous training schedule on Tinian. Swimming, horseshoes, baseball, and racing scooters helped them bide their time until Tibbets called on them to carry out the mission that was "going to win the war."

EG:333-L5a-P5a
Special Services Activities memo
No label needed

EG:333-L5b-P5b
Playing cards

Courtesy of Charles Levy

EG:340-L1
main title
this section on railing by aircraft starboard side

THE B-29 SUPERFORTRESS "ENOLA GAY"

On August 6, 1945, the Enola Gay dropped an atomic bomb on Hiroshima, Japan, and changed the face of warfare. The night before the mission, pilot Col. Paul Tibbets named the aircraft after his mother.

Manufactured under license by Martin Aircraft in Omaha, Nebraska, aircraft serial number 44-86292 was hand-picked by Tibbets. Captain Lewis and his crew from the 509th Composite Group took possession at the factory on June 14, 1945. Like the other 509th aircraft, it was specially modified for atomic missions. It was armed only with tail guns and incorporated the latest technology: the newest version of the huge R-3350 engines, Curtiss Electric reversible propellers, and pneumatic bomb-bay doors.

The Enola Gay arrived at Tinian on July 2, 1945, and flew its first combat mission with conventional bombs four days later. After returning to the United States in November 1945, the aircraft was assigned to the Bikini atomic tests. It flew back to the Pacific in April 1946, but was not used in those tests.

EG:340-L1a-S1a

A 1:48 scale model of the Enola Gay as it appeared on August 6, 1945.
Model built and donated by Peter Espada

EG:340-L2
specifications block

BOEING B-29-45-MO SUPERFORTRESS "ENOLA GAY"

Wingspan:	43 m (141 ft 3 in)
Length:	30.2 m (99 ft)
Height:	9 m (29 ft 7 in)
Weight, empty:	31,400 kg (69,000 lb)
Weight, gross:	62,500 kg (137,500 lb)
Top speed:	586 km/h (364 mph) at 7,600 m (25,000 ft)
Armament:	Two 12.7 mm (0.50 cal) machine guns in tail
Engines:	Four Wright Cyclone R-3350-57, fuel-injected 18-cylinder radial engines, 2,200 hp each
Manufacturer:	Glenn L. Martin Co., Omaha, Nebr. (under license from Boeing Aircraft Co., Seattle, Wash.), 1944-45

EG:340-L3

THE MARKINGS ON THE "ENOLA GAY"

The crew names stenciled on both sides of the nose were added sometime after the Bikini atomic tests of 1946 and do not include all 12 who were on the August 6, 1945, mission. Omitted were Navy Capt. William S. Parsons, "Little Boy" project leader and bomb commander; Army Air Forces Lt. Morris R. Jeppson, Parson's assistant in arming the atomic bomb; and Army Air Forces Lt. Jacob W. Beser, the radar countermeasures officer. Not all ground crew who worked on the Enola Gay were included in the stencils either.

The Enola Gay flew on August 6 with the "circle R" tail markings of another B-29 squadron to confuse Japanese intelligence. The 509th's regular tail insignia was a horizontal arrow in a circle.

EG:340-L3a-P3a
Aero. curatorial file

The Enola Gay on Tinian, shortly after the Hiroshima mission, displaying the 509th Composite Group's regular tail insignia.

EG:340-L4

THE RESTORATION OF THE "ENOLA GAY"

In July 1946, the Army Air Forces stored this historic aircraft in Arizona. Colonel Tibbets flew it to Park Ridge, Illinois, on July 3, 1949, and turned it over to the Smithsonian. The Enola Gay was moved to Pyote Air Force Base, Texas, in February 1952 and remained there until December 2, 1953, when it made its last flight, to Andrews Air Force Base, Maryland, just outside Washington, D.C. Unfortunately, the Air Force had no available hangar space, and the Smithsonian had no appropriate storage facilities for an aircraft of this size. The aircraft sat outdoors and suffered corrosion and vandalism. Fearing further deterioration, in 1960-61, Smithsonian technicians disassembled the Enola Gay and stored it indoors at what is now the Paul E. Garber Preservation, Restoration, and Storage Facility in Silver Hill, Maryland.

Restoration began at the Garber Facility in December 1984. It is by far the largest aircraft restoration project ever undertaken by the National Air and Space Museum, and it will ensure the preservation of the Enola Gay for future generations.

EG:340-L4a-d-P4a-d

Scenes from the restoration of the Enola Gay at the National Air and Space Museum's Garber Facility.

EG:340-L5

WHEN WILL THE "ENOLA GAY" BE RE-ASSEMBLED?

Because of its huge size, the Enola Gay cannot be reassembled and displayed as a complete aircraft inside the National Air and Space Museum or even at the present restoration facility outside Washington. Therefore, except for a propeller and some small components, this exhibit contains only the forward fuselage section, which is slightly less than two-thirds the airplane's 30-meter (99-foot) length.

The Enola Gay will be reassembled and put on permanent display at the Museum's new extension facility, to be built at Washington Dulles International Airport sometime in the next decade.

EG:340-L5a-S5a

A copy of the act authorizing the construction of the National Air and Space Museum extension at Dulles Airport.

EG:341-L1

THE "LITTLE BOY" ATOMIC BOMB

A bomb of this type was dropped by the Enola Gay on Hiroshima, Japan, on August 6, 1945. Unlike the "Fat Man" plutonium bomb dropped on Nagasaki, the "Little Boy" used uranium 235. Inside the bomb, a shortened smooth-bore naval gun fired a uranium bullet at target rings also made of uranium 235. At the moment of impact, a critical mass was formed, initiating a nuclear explosion. Due to the gun barrel and the heavy casing, the "Little Boy" weighed over 4 metric tons (8,900 pounds), almost as much as the much larger "Fat Man."

EG:341-L2-S2

"LITTLE BOY" ATOMIC BOMB CASING

The bomb casing shown here was built after the war as a training version of the uranium bomb. Except for the absence of electronic firing circuitry and nuclear material, this bomb casing is very similar to the Hiroshima weapon. It contains no nuclear material and presents no radiation hazard.

EG:341-L2a
specifications block

"LITTLE BOY" ATOMIC BOMB

Weight:	4,045 kg (8,900 lb)
Diameter:	0.7 m (2 ft 4 in)
Length:	3.2 m (10 ft 6 in)
Yield:	12 kilotons (the equivalent of 12,000 tons of TNT)
Manufacturer:	Manhattan Project (1944-46), Atomic Energy Commission (1947-50)

EG:341-L2b-P2b
redraw diagram from "U.S. Nuclear Weapons"
[No label needed.]

EG:350-L1
Main label

MISSION NO. 13: HIROSHIMA

EG:350-L2
Main text

On August 4, 1945, seven crews were ordered to attend the first briefing for Mission No. 13. Military police armed with carbines surrounded the building, and the curtains inside were drawn. In the darkened hut, they quietly awaited their commanding officer's arrival.

Tibbets spoke to the point. He informed them the "gimmick" was ready. Operations office Hopkins announced crew assignments and then intelligence office Payette unshrouded map boards to reveal aerial photographs of the potential target cities: Hiroshima, the primary target, and Kokura and Nagasaki, the backup targets to be bombed if Hiroshima was clouded over.

EG:350-L2a-P2a

Capt. Joe Buscher, intelligence officer, describes the potential targets.

EG:350-L3

CREW SUBSTITUTIONS

Tibbets announced that No. 82's regular crew, with a few substitutions, would deliver the bomb. Basing his decision on rank and experience, he assigned himself as pilot and chose Van Kirk as navigator and Ferebee as bombardier--the three had flown together in combat in Europe. As commanding officer, he had the right to make such changes, and they came as no surprise to most of the 509th.

Even so, the decision aroused discontent. No. 82's regular pilot, Capt. Robert Lewis, was furious at being relegated to co-pilot at the last minute. Some members of the final strike crew felt uneasy because they had never before flown in combat together.

EG:350-L3a-P3a
[LABEL DELETED]

EG:350-L3b-S3b

Van Kirk used this navigator's kit and plotter on the Hiroshima strike.
Courtesy of Theodore "Dutch" Van Kirk

EG:350-L3c-S3c

Van Kirk used this master clock for accurate navigation to Enola Gay's rendezvous point with the photography and instrument planes over Iwo Jima.
Courtesy of Theodore "Dutch" Van Kirk

EG:350-L3d-S3d

Each crew member carried a .45 caliber automatic pistol.
Courtesy of Theodore "Dutch" Van Kirk

EG:350-L4

"SOME WEIRD DREAM"
"It was like some weird dream, conceived by one with too vivid an imagination."
Radio operator Sgt. Abe Spitzer's diary, Tinian 1945

After Tibbets announced crew assignments and described targets, Manhattan Project scientist and Navy Capt. Deak Parsons briefed the crews about the power of the bomb, without divulging its atomic nature. He could not show them the film footage of the Trinity explosion, because the projector failed. But even without it, Parsons' first-hand descriptions of the bomb test and still photographs astounded the crews.

EG:350-L4a-P4a

Capt. Deak Parsons briefs the seven crews who would carry out the first atomic strike.

EG:350-L4b-S4b

Parsons explained that the bomb would create such a bright flash that crews would need to wear goggles, similar to those worn by welders, to protect their eyes.
Courtesy of...

EG:350-L5

"LITTLE BOY" GOES TO TINIAN

On July 26, the cruiser USS Indianapolis arrived at Tinian, carrying the gun and bullet elements of the "Little Boy" bomb. That same day, two 509th transports departed for Tinian, each carrying a uranium target element.

Once all parts were delivered, Manhattan Project scientists and 509th ordnance specialists assembled the bomb, but did not arm it. Having considered the possible catastrophic results if the Enola Gay, loaded with a live atomic bomb, crashed on takeoff, Parsons decided to finish arming the bomb before the Enola Gay had reached bombing altitude.

EG:350-L5a-S5a

Receipt for the uranium components of the "Little Boy" bomb.
Lent by the Smithsonian Institution Libraries

EG:350-L5b

THE SINKING OF THE "INDIANAPOLIS"

Only three days after leaving the atomic bomb components on Tinian, the USS Indianapolis was torpedoed and sunk by a Japanese submarine. Because the whereabouts of warships at sea were confidential, the sinking at first went unnoticed. The majority of those who had escaped the wreck perished in the ensuing five-day ordeal in shark-infested waters. Only 317 of the Indianapolis's 1,197-man crew of sailors and Marines survived--the greatest single U.S. naval tragedy of World War II.

The sinking was a powerful reminder to the 509th of the human costs of the ongoing war. Someone inscribed the "Little Boy" bomb with the message, "Greetings to the Emperor, from the men of the Indianapolis."

EG:350-L5c-P5c

Survivors of the Indianapolis return home on the escort carrier USS Hollandia.

EG:350-L5d-S5d
[LABEL DELETED]

EG:350-L6

"A TICKLISH PROCEDURE": LOADING THE BOMB

On August 5, the completed bomb was placed on a transport dolly, shrouded for secrecy, and rolled out to the pit, where it was loaded into the Enola Gay.

The bomb bays of the 509th's B-29s had been modified to carry the unusually large and heavy atomic bombs. Because the bomb was so huge, was suspended from only a single shackle, and put so much weight in the front of the bomb bay, it was immobilized by an "H" frame and by adjustable sway braces. Loading it was "a rather ticklish procedure," according to one engineer.

EG:350-L6a-d-P6a-d
loading procedure

Courtesy of Los Alamos National Laboratory

EG:350-L7

PREFLIGHT: 11:00 P.M. TO 2:35 A.M.

In the late hours of August 5, briefing began for seven of the 509th's 15 crews. In the hours before, some men had tried to sleep, others had composed letters home, and some had found relief in a late-night card game. After eating a special breakfast and attending a religious service, they headed off to the flight line.

When they arrived, they were surprised to find camera lights illuminating the aircraft parking area and about 100 people on the tarmac. They answered questions, nervously milled around, and made final checks on their airplanes. Around 2:20 a.m., Tibbets "called a halt" so they could complete preparations for takeoff.

EG:350-L7a-S7a

Operations Order #35 specified that the bomb type to be used was "special," but did not mention that it was atomic.
Courtesy of the Hoover Institution

EG:350-L7b-P7b
Parsons and Tibbets interviewed

Camera crews filmed the Enola Gay's crew for 20 minutes before takeoff.

EG:350-L7c-P7c

Tibbets waves from the cockpit of the Enola Gay before takeoff.

EG:350-L8

FLIGHT TO JAPAN

The Enola Gay, loaded with bomb and fuel, was 15,000 pounds over its designated takeoff weight limit. Using almost the entire runway, Tibbets expertly lifted the plane into the air. Fifteen minutes after takeoff, Deak Parsons and Morris Jeppson carefully began the final assembly of the bomb's detonating device. Three hours later, the Enola Gay and its two escort planes circled over the designated rendezvous point above Iwo Jima.

For the remaining hours of the flight, some of the crew took turns napping, and "George," the automatic pilot, steered the plane toward Japan. At 6:15 a.m., Hiroshima time, the weather plane over the city of Hiroshima reported to Tibbets that the cloud cover was favorable for visual bombing. Tibbets announced to his crew, "it's Hiroshima."

EG:350-L8a-S8a
(if available)

This is the original navigator's log of the Hiroshima mission. It was kept by the Enola Gay's "Dutch" Van Kirk. Note "Bomb away" at 0915, Tinian time.
Lent by Theodore "Dutch" Van Kirk

EG:350-L9

ARMING THE BOMB
"The bomb was now independent of the plane. I had a feeling the bomb had a life of its own now that it had nothing to do with us."
Capt. Bob Lewis, Enola Gay's co-pilot, comments on the activation of the bomb

An hour and 45 minutes before "bombs away," assistant weaponeer Morris Jeppson entered the bomb bay to arm the bomb. Throughout the flight, three green plugs inserted into the forward part of the bomb kept the electronic firing circuitry inactive. Jeppson's final task was to replace the green plugs with the red plugs that would open the firing circuit.

EG:350-L9a,b-S9a,b

The green arming plug was one of the three actually in the Hiroshima bomb before it was dropped. Morris Jeppson took it out and replaced it with a red plug identical to the one shown here.
Lent by Morris Jeppson

EG:350-L10

BOMB AWAY

While Tibbets maintained the plane's altitude and airspeed, bombardier Ferebee began to track the T-shaped Aioi bridge in the center of Hiroshima with the Norden bombsight. In coordination with navigator Van Kirk, Ferebee monitored wind, temperature, altitude, and airspeed and adjusted the bombsight accordingly. His adjustments directed the aircraft along the desired approach path and programmed the sight to automatically release the bomb. At 8:15 a.m., Hiroshima time, the bombsight's crosshairs aligned perfectly over the target. Ferebee, who was counting down the seconds to the drop, never got to "one" before the bomb was away. As a

backup measure, he was prepared to toggle a switch that would manually drop it in the unlikely case that the circuitry failed.

As the lightened plane lurched upward, Tibbets took the controls and executed the escape turn. Forty-three seconds later, a flash of light filled the cockpit, and soon thereafter the first of two shock waves hit the plane. Tibbets announced, "Fellows, you have just dropped the first atomic bomb in history."

EG:350-L11

THE FIRST ATOMIC BOMB: HIROSHIMA

"The flash after the explosion was deep purple, then reddish and reached to almost 8,000 feet; the cloud, shaped like a mushroom, was up to 20,000 feet in one minute, at which time the top part broke from the "stem," and eventually reached 30,000.

"The stem of the mushroom-like column of smoke, looking now like a giant grave marker, stood one minute after the explosion upon the whole area of the city, excepting the southern dock area. This column was a thick white smoke, darker at the base, and interspersed with deep red.

"Though about fifteen miles from the target when the explosion occurred, both escort aircraft, as well as the strike plane, reported feeling two shock waves jar the aircraft. Approximately 390 statute miles away from the target area, the column of smoke still could be seen piercing the morning sky."
509th Composite Group Administrative Report

EG:350-L11a-P11a
photograph #1 of explosion

"I don't believe anyone ever expected to look at a sight quite like that. Where we had seen a clear city two minutes before, we could now no longer see the city."
Co-pilot Capt. Bob Lewis, post-war interview

EG:350-L11b

"That city was burning for all she was worth. It looked like...well, did you ever go to the beach and stir up the sand in shallow water and see it all billow up?"
1st Lt. Jacob Beser, radar countermeasures officer

EG:350-L11c-P11c
picture #2 of explosion

As Tibbets tamped down the tobacco in his pipe, he commented to Bob Lewis on the bomb's impact. "I think this is the end of the war."

EG:350-L12

A HERO'S RETURN

Over 200 officers and enlisted men waited anxiously for the Enola Gay's return. Twelve hours and 13 minutes after leaving Tinian, Tibbets landed the plane on North Field.

Lt. Gen. Carl Spaatz, commander of the U.S. Army Strategic Air Forces, and "all the ranking military brass that could be mustered in the Marianas at that time," met the crew as they disembarked. To Tibbets' surprise, Spaatz greeted him, shook his hand, and then pinned a Distinguished Service Cross to his rumpled flying suit.

EG:350-L12a-P12a

Lt. Gen. Carl Spaatz awards Paul Tibbets the Distinguished Service Cross for his historic flight.

EG:350-L12b-S12b
August 7-9 issues

President Truman's announcement made the front page of the "Daily Mission," published by the 313th Bomb Wing Education Office on Tinian.
Courtesy of Leonard J. Hardy

EG:350-L12c-S12c
(if available)

Sixteen hours after the 509th dropped the "Little Boy" bomb on Hiroshima, the White House released a prepared statement announcing the atomic bomb to the American public. This is an original copy distributed on Tinian.
Courtesy of Charles Levy

EG:350-L13
[LABEL DELETED]

EG:360-L1
main label
(Kokura to be crossed out and Nagasaki written in for dramatic effect)

MISSION NO. 16: KOKURA/NAGASAKI

EG:360-L2
main text

Three days after Hiroshima, Maj. Charles Sweeney, piloted the Bockscar and its crew on the second and last atomic attack of the war. Because of poor visibility over the primary target--the industrial city of Kokura--Sweeney's crew dropped their plutonium "Fat Man" bomb on Nagasaki.

While perfect timing characterized the Hiroshima raid, a defective fuel transfer pump and a threatening typhoon marked the second. When deteriorating weather conditions threatened to postpone the mission by a week, Col. Tibbets and his staff quickly advanced the projected date from August 11 to August 9.

EG:360-L3

WHY A SECOND BOMb?
"Additional bombs will be delivered on the above targets as soon as made ready by the project staff."
Gen. Thomas Handy, Acting Army Chief of Staff, to Lieutenant General Spaatz, Commander, Strategic Air Forces in the Pacific, July 25, 1945

There was no separate order to drop the second bomb, and no instructions were given to wait for a Japanese response to the first attack. Major General Groves, head of the Manhattan Project, felt it was important to drop another bomb immediately to show the Japanese that the United States possessed more than one atomic weapon. Acting on the July 25 directive, the 509th's Ordnance Squadron and Manhattan Project scientists on Tinian began to prepare the "Fat Man" plutonium bomb for the second mission.

EG:360-L3a

"With the success of the Hiroshima weapon, the pressure to be ready with the much more complex implosion device became excruciating.... Everyone felt that the sooner we could get off another mission, the more likely it was that the Japanese would feel that we had large quantities of the devices and would surrender sooner."
Post-war interview with Bernard O'Keefe, a member of the "Fat Man" assembly team

EG:360-L3b-P3b

Luis Alvarez (left), one of the Manhattan Project scientists who flew in the instrument plane during the Nagasaki raid, helps carry the plutonium core for the second bomb to the assembly hut.
Courtesy of Esther Samra

EG:360-L3c-S3c

Receipt for the "Fat Man" plutonium delivered to Tinian on July 26, 1945.
Lent by the Smithsonian Institution Libraries

EG:360-L3d,e-P3d,e
(photos of the Japanese language leaflet and the original English text)

This leaflet, warning of the atomic bomb, was dropped on Nagasaki and two other Japanese cities the day before the second atomic bomb. It was largely disregarded because the Japanese people did not yet understand what had happened to Hiroshima.

EG:360-L4

THE PROBLEMS BEGIN

At the pre-flight briefings, Tibbets assigned six crews and described the primary and secondary targets, Kokura and Nagasaki. The mission's weaponeer then briefed them on the atomic bomb. In the early hours of August 9, the crews headed for the airfield.

A preflight check of the strike plane, Bockscar, piloted by Charles Sweeney, uncovered a malfunctioning fuel transfer pump. With no time to fix the defective pump, Sweeney and Tibbets decided to proceed. The one change was to move the rendezvous point with the escort planes closer to Japan because of the location of the weather front.

To add to the mechanical problems, weather conditions were unfavorable. Forecasters predicted that the crews would fly through tropical rain squalls all the way to Japan. At 3:47 a.m., Tinian time, Sweeney lifted the Bockscar off the tarmac.

EG:360-L4a-P4a

Van Pelt, Sweeney, and Olivi (left to right) discuss flight plans after they learn about the defective fuel tranfer pump.

EG:360-L4b-P4b

The strike plane's crew. Standing, left to right: bombardier Capt. Kermit Beahan, navigator Capt. James Van Pelt, co-pilot Capt. Charles Albury, third pilot observer 2nd Lt. Fred Olivi, command pilot Maj. Charles Sweeney. Kneeling, left to right: radar operator Staff Sgt. Edward Buckley, flight engineer Master Sgt. John Kuharek, assistant flight engineer Sgt. Raymond Gallagher, tail gunner Staff Sgt. Albert Dehart, radio operator Sgt. Abe Spitzer. Missing from the picture are weaponeer Cmdr. (U.S. Navy) Fred Ashworth, assistant weaponeer 2nd Lt. P. M. Barnes, and radar countermeasures officer Lt. Jacob Beser.

EG:360-L4c-P4c
crewman paints Bockscar insignia

No. 77, Bockscar. The nose art was applied after the atomic strike. The aircraft can now be seen at the U.S. Air Force Museum at Wright-Patterson Air Force Base, Ohio.

EG:360-L4d-S4d

An original strike order for the Kokura/Nagasaki mission.
Courtesy of the Hoover Institution

EG:360-L5

KOKURA: "NO DROP"

Weather scouts had reported that both Kokura and Nagasaki were clear for visual bombing. But Bockscar's arrival over its primary target, Kokura, was delayed by a missed rendezvous with one of the accompanying planes. The delay cost 45 minutes and more precious fuel. By the time Bockscar flew over Kokura, thick haze and smoke obscured the target. Sweeney made three passes over the city, but each time bombardier Kermit Beahan announced, "No drop."

A tense crew received flight engineer Kuharek's report that just enough fuel remained to drop the bomb on the secondary target and return to a friendly air field. Sweeney alerted special air-sea rescue forces that he might have to ditch the aircraft. He then turned Bockscar toward the secondary target, Nagasaki.

EG:360-L6

THE SECOND ATOMIC BOMB: NAGASAKI

Because clouds obscured Nagasaki, Bockscar's bombardier Kermit Beahan could not see the target. Although Tibbets had ordered them to bomb visually, Sweeney had to make a choice: either use radar--a fairly crude technology in 1945--or jettison the bomb in the ocean. Reluctant to waste the valuable and powerful weapon, he authorized navigator Van Pelt to use radar for the approach. Shortly before 11:02, Japanese time, Beahan spotted recognizable features through the overcast and dropped the "Fat Man" over Nagasaki. Although relieved, the crew would later be disappointed to learn that they had missed the aiming point by 2.6 kilometers (1.6 miles).

The mission was far from over. By the time the Bockscar reached Okinawa, fuel reserves were dangerously low. Sweeney's "Mayday" calls did little to clear the crowded runway; firing signal flares finally roused a response. Upon landing, one engine quit for lack of fuel. But for Van Pelt's accurate navigation, Bockscar might not have made it. After refueling, the plane took off for Tinian.

EG:360-L6a-P6a

The "Fat Man" exploded with the energy of 22 kilotons, almost twice as powerful as the "Little Boy" bomb at Hiroshima.
Courtesy of Charles Levy

EG:360-L6b-P6b

"After explosion, a balloon-like ring of white smoke formed, followed by a light-red ball of fire which covered two-thirds of the target area."
509th Composite Group Administrative Report courtesy of Charles Levy

EG:400-L1
Unit Main Title

HIROSHIMA AND NAGASAKI

EG:400-L2

THE EFFECTS OF NUCLEAR BOMBS

Although the destruction of entire cities by conventional bombing had become common as World War II progressed, the atomic bombs dropped at Hiroshima and Nagasaki introduced a number of new elements, many of which were not fully understood until after the bombs were used. These included an intense burst of ionizing (high energy) radiation; an exploding fireball instantly inflicting burns and starting fires; an enormously powerful shock wave; a mushroom cloud propelling fission products and irradiated material into the upper atmosphere, from where it returned as "radioactive fallout"; short-term effects of radiation sickness, including death within a few days among the heavily exposed; and long-term effects of radiation exposure, including cancer and birth defects.

Thus the destructive effects of the atomic bombs in Japan were not simply those of an equivalent tonnage of conventional bombs. Some, like leukemia, became apparent only years after the events.

EG:400-L3

GROUND ZERO:
HIROSHIMA, 8:15 A.M., AUGUST 6, 1945
NAGASAKI, 11:02 A.M., AUGUST 9, 1945

EG:400-L3a-P3a
(main panel backdrop?)
Tom C.'s no.: P2

Hiroshima, August 6, 1945
The mushroom cloud as seen 15 to 20 minutes after the explosion from the Mikumari Gorge, some 6.5 kilometers (4 miles) from ground zero.
Photograph by Seizo Yamada

EG:400-L3b

"At first I saw rainbows, one over the other, then a mushroom cloud began to rise, and I heard the sound of a tremendous explosion."
Seizo Yamada, Hiroshima

EG:400-L3c-S3c
(Artifacts in this section are preliminary; based on initial request to the Hiroshima and Nagasaki Museums.)

This wristwatch was smashed when its owner, Akito Kawagoe, was buried beneath the debris of the Futaba-No-Sato army barracks, 1.8 kilometers (1.1 miles) from the explosion. He escaped and survived.
Loaned by Akito Kawagoe and the Hiroshima Peace Memorial Museum

EG:400-L3d-S3d
Broken wall clock, Nagasaki

[Label copy to be provided.]
Loaned by Nagasaki International Culture Hall

EG:401-L1-P1

Hiroshima, 8:17 a.m., August 6, 1945
The base of the growing mushroom cloud as seen from near the Kanda Bridge, 8 kilometers (5 miles) from ground zero, two minutes after the explosion.
Photograph by Mitsuo Matsushige

EG:401-L2-P2

Hiroshima, 8:30 a.m., August 6, 1945
Gon'ichi Kimura was stationed at the Army Water Transport Headquarters, Ujina, about 4 kilometers (2.5 miles) south of ground zero. He snapped this photo of the cloud roughly 15 minutes after the explosion.
Photograph by Gon'ichi Kimura

EG:401-L3-P3

Nagasaki, 11:12 a.m., August 9, 1945
This photograph of the Nagasaki cloud was taken from Koyagi Island in Nagasaki Harbor, 10 kilometers (6 miles) south of the explosion.

EG:401-L4-P4

Nagasaki, 11:12 a.m., August 9, 1945
The Nagasaki cloud as seen from a spot only 8 kilometers (5 miles) from ground zero. Judging from the size and shape of the cloud, the photograph was taken about 10 minutes after the explosion. Twelve minutes after the blast, the top of the mushroom cloud had already reached an altitude of 12 kilometers (7.5 miles).

EG:410-L1
Main Title

BEFORE THE BOMB: TWO CITIES AT WAR

EG:411-L1

HIROSHIMA: A MILITARIZED CITY

On the morning of August 6, 1945, Hiroshima was the seventh largest city in Japan, with a population of 350,000, and an important industrial center and army base of 40,000. Located on the southwestern end of the main island of Honshu, where the delta of the Ota River enters the Seto Inland Sea, the city took its name from the Hiro-shima-Jo ("Broad-island-castle"), a fortress established by a local lord in 1594.

In April 1945, the Second General Headquarters, which was to plan and lead the defense against the expected American invasion, was established in Hiroshima. Supplies for Imperial forces in China, Southeast Asia, and the Pacific had passed through the city's Ujina port throughout World War II.

EG:411-L1a-P1a
(For consideration as a large graphic underlaying the Hiroshima labels.)

An Army Air Forces aerial photograph of Hiroshima before the attack. The distance between each circle represents about 300 meters (1,000 feet). The aiming point, the T-shaped Aioi Bridge, is just above and to the left of the center of the inner circle.

EG:411-L1b-P1b

An aerial photograph of Hiroshima taken after the bombing.

EG:411-L1c-P1c

This photograph of Hiroshima, taken on May 20, 1936, shows the Aioi Bridge, the aiming point for the atomic bomb. The explosion took place 300 meters (1,000 feet) away, at the foot of the Moyasu Bridge in the lower right-hand corner of the photo. The island in the center and the areas on either bank were the heart of the business and shopping district.
Courtesy of

EG:411-L1d-P1d

The Industrial Promotion Hall before the bombing. Prior to World War II, it had housed trade exhibitions that showcased local industrial products.
Courtesy of

EG:411-L1e-P1e

The shattered dome of the Industrial Promotion Hall would become the symbol of a shattered city.
Courtesy of

EG:411-L2

HIROSHIMA AT WAR

Hiroshima had escaped the firebombing campaign that was destroying many smaller cities. Puzzled, some residents of the city speculated that the city had been spared because of its beautiful location on the Inland Sea. Others believed it was being protected because so many Japanese American families had emigrated from the region. One wild rumor even suggested that Hiroshima was the birthplace of President Truman's mother.

Convinced that the B-29s passing over the city each night would eventually strike Hiroshima, city officials prepared for an attack. Concerned that flooding would result from the destruction of a dam above the city, they issued bamboo floats to the leaders of neighborhood associations and ordered that similar floats be constructed for everyone in the city. Students were released from class and put to work clearing firebreaks in the center of the town. Sand and water buckets were kept filled. The people of Hiroshima were determined to be prepared when the attack came.

EG:411-L3

HIROSHIMA, 8:15 A.M., AUGUST 6, 1945

The morning of Monday, August 6, was sunny and hot in Hiroshima. By 7:00 a.m. people were pouring into the city center to begin the workday. Besides the usual office and factory workers, merchants, soldiers, and shopkeepers, some 8,000 junior and senior high school students were laboring to demolish buildings that had been evacuated to create firebreaks in the center of the city. This was typical of the work for which young people were conscripted throughout Japan.

The first air raid warning of the day sounded at 7:09, as Straight Flush, a B-29 weather aircraft piloted by Capt. Claude Eatherly, appeared over the city. Enola Gay, accompanied by two other B-29s, the Great Artiste and Number 91, approached Hiroshima from the northeast one hour later. At precisely 8:15:17 the "Little Boy" bomb was released from the Enola Gay. Forty-three seconds later it detonated 580 meters (1,870 feet) above the ground.

EG:412-L1

NAGASAKI: WINDOW ON THE WEST

Founded in the 12th century, Nagasaki is located on the southwestern island of Kyushu, where the Nakashima and Urakami rivers enter the East China Sea. In 1549 the Jesuit father Francis Xavier landed on Kyushu and founded the first Christian missions in Japan. Intrigued by the new religion, and by Western firearms, Japanese leaders at first tolerated the Spanish and Portuguese presence at Nagasaki. After 1587, however, they banned Christianity and severely persecuted its adherents.

From about 1640 to 1850, all foreign contacts with Japan were made through Nagasaki, where a small group of Dutch East India Company traders were allowed to operate on the tiny island of Dejima in the harbor. Nagasaki retained its importance as a center of Western economic and cultural influence following the opening of Japan to trade in 1859. Christians who had remained secretly faithful during the centuries of persecution re-emerged.

EG:412-L2

NAGASAKI AT WAR

In August 1945, Nagasaki had a population of 240,000 people and was a major industrial center. One of the most important shipyards in the nation was located in the harbor. The great naval base of Sasebo was nearby, and the giant battleship Musashi was based there during much of 1944. The city was also home to a variety of factories critical to the war effort, including the Mitsubishi Steel Works. The torpedoes used in the Japanese attack on Pearl Harbor in 1941 were manufactured in Nagasaki.

EG:412-L2a-P2a
(For consideration as a photo underlay for the Nagasaki labels)

An Army Air Forces aerial photograph of the Urakami Valley region of Nagasaki before the bombing.

EG:412-L2b-P2b

The same area after the bombing. The distance between circles is about 300 meters (1,000 feet).

EG:412-L2c-P2c
NASM photo 3A-3671

The Mitsubishi arms factory was 1,200 meters (0.75 miles) from ground zero in Nagasaki.

EG:412-L3

NAGASAKI, 11:02 A.M., AUGUST 9, 1945

The morning of Thursday, August 9, was mild and humid in Nagasaki. The skies were fairly clear at 8:30 a.m., when a B-29 weather aircraft flew over the city. By mid-morning, however, a weather front moving in from the East China Sea had spread a thick layer of cloud over Nagasaki.

Having been forced to abandon their primary target, Kokura, because of haze and smoke, the B-29s Bockscar and The Great Artiste were running low on fuel as they approached Nagasaki. The bombardier of Bockscar made a radar approach and released the "Fat Man" bomb at 11:02 a.m. The weapon exploded 503 meters (1,540 feet) above the Urakami River valley, 2.6 kilometers (1.6 miles) from the intended target in the center of the city.

EG:412-L4

NAGASAKI, AUGUST 10, 1945

Mr. Yosuke Yamahata set out with his camera early on the morning of August 10, 1945. He spent the day walking through the shattered Urakami Valley, capturing scenes of the incredible destruction--and the faces of those who had survived.

EG:412-L4a-b-P8a-b
[No labels needed.]

EG:413-L1-S1

SCHOOLBOY'S JACKET

Tetsuo Kitabayashi was a first-year student at the Second Hiroshima Prefectural Middle School. On the morning of August 6, 1945, he was conscripted with other students to work on a civil defense project near the Shin Ohashi Bridge. He returned home that afternoon, badly burned, and was taken to the Ujina aid station. He fell unconscious and died shortly after 4:00 p.m. on August 7.
Loaned by the Hiroshima Peace Memorial Museum

EG:420-L1
Main title

"THE INCREDIBLE AVALANCHE OF LIGHT"

EG:420-L2
main text

"Flash! The incredible avalanche of light seemed to last for several seconds... momentarily the bright August sun was completely absorbed and negated by it."
Kimie Akabae, Nagasaki

Few survivors who were close to the center of the Hiroshima or Nagasaki explosions would remember hearing the sound of the blast. What none of them would ever forget was the Pika--the flash of incredibly brilliant light and heat that occurred as a nuclear explosion heated the sky to luminescence. The burst of light was quickly followed by a tremendous air pressure wave that bent steel bridges, toppled buildings, and reduced wooden houses to kindling.

EG:420-L2a-P2a

The shadow of a valve control wheel, imprinted on the side of a storage tank by the flash, 1,900 meters (6,300 feet) from ground zero at Hiroshima.

EG:420-L2b

"Then a tremendous flash of light cut across the sky.... It seemed like a sheet of sun."
Rev. Kiyoshi Tainimoto, from Hiroshima by John Hersey (1946)

EG:420-L2c

"Suddenly there was a brilliant flash, like a photographer's magnesium flash.... Then came the blast with a deafening bang and I felt as though I had been kicked in the guts.... The world was black."
F. J. Johnston, Australian prisoner-of-war in Nagasaki, 1945

EG:420-L2d-S2d

The pressure of the blast crumpled this sheet of metal like paper.
Loaned by the Hiroshima Peace Memorial Museum

EG:420-L2e-S2e

The Imperial Army Clothing Depot was located 2.7 kilometers (1.7 miles) from ground zero at Hiroshima. Even at that distance the blast was strong enough to bend these steel shutters from the building.
Loaned by the Hiroshima Peace Memorial Museum

EG:420-L3

A MOMENT FROZEN IN TIME

The flash of light generated by the detonation cast shadows on walls, steps, buildings, and even stands of bamboo in Hiroshima and Nagasaki. The unbelievable heat, which reached 3,000 to 4,000C (5,400 to 7,200F) at ground level under the explosions--roughly the temperature of the surface of the sun--altered the color of the surrounding material, etching the shadows in place.

EG:420-L3a-S3a

The shadow of leaves imprinted on bamboo stalks.
Loaned by the Hiroshima Peace Memorial Museum

EG:420-L3b-S3b

The shadow of a washline imprinted on a Nagasaki fence.
Loaned by the Nagasaki International Culture Hall

EG:420-L3c-P3c

The shadow of a ladder imprinted on a metal surface.

EG:420-L3d-P3d

A rescue worker found this scrap of a poster in Hiroshima on August 6. The dark letters, which absorbed heat more readily, have been burned out of the lighter-colored paper.
Loaned by the Hiroshima Peace Memorial Museum

EG:420-L3e-S3e

Ceramic roof tiles melted by the flash.
Loaned by the Nagasaki International Culture Hall

EG:420-L3f-S3f

(Nagasaki pebbles affected by heat--label to follow)

EG:420-L3g-P3g

People caught in the open within 1,000 meters (0.6 miles) of the blast experienced temperatures so high that the dark, heat-absorbing pattern of their clothing was burned into their flesh.
Courtesy of the National Museum of Health and Medicine, Armed Forces Institute of Pathology

EG:420-L4
(To accompany video testimony.)

"HIBAKUSHA"

Hibakusha ("explosion-affected person") is a term that has been applied to atomic bomb survivors for the past half century. Many have suffered the post-war prejudices of their countrymen, who believed that survivors were tainted by exposure to radiation.

EG:430-L1
Main title

TWO CITIES IN CHAOS

EG:430-L2

HIROSHIMA: THE FIRST HALF HOUR

Hiroshima stands on a flat river delta, with few hills to protect sections of the city. The bomb was dropped on the city center, an area crowded with wooden residential structures and places of business. Beneath the column of smoke that rose over the city following the explosion, tens of thousands were already dead or dying.

Even before the fires began to race out of control, the physical destruction of buildings and other structures within 2 kilometers (1.2 miles) of the blast was virtually complete. The sheer force of the explosion had shifted the position of a large steel bridge close to ground zero, flattened all wooden buildings and steel frame structures, and collapsed the floors and roofs of reinforced concrete buildings designed to withstand earthquakes.

EG:430-L2a-P2a

Hiroshima, 9:15 a.m., August 6, 1945
This photograph, taken one hour after the attack, shows a first-aid station established at the west end of the Miyuki Bridge, 2.3 kilometers (1.4 miles) from ground zero.
Photograph by Yoshito Matsushige, Chugoku Shimbun

EG:430-L2b-P2b

Hiroshima, 2 p.m., August 6, 1945
Policeman Tukuo Fujita (with head bandaged) of the Ujina Station, preparing casualty certificates at Minami-machi Streetcar Stop No. 2.
Photograph by Yoshito Matsushige, Chugoku Shimbun

EG:430-L3

NAGASAKI: THE FIRST HALF HOUR

The pattern of destruction in Nagasaki was shaped by the city's geography. The bomb was dropped over the Urakami Valley, an industrial and residential area. The center of Nagasaki, the harbor, and the historic district were shielded from the blast by the hills flanking the Urakami River. But in the valley, about 12,000 buildings were destroyed by the blast or burned in the ensuing fires.

The more powerful bomb and the focusing effect of the surrounding hills resulted in even greater destruction in the Urakami Valley than in Hiroshima. Virtually nothing was left standing.

EG:430-L3a-P3a

Nagasaki, 8 a.m., August 10, 1945
Early aid parties entering the devastated portion of Nagasaki near the Urakami station.
Photograph by Yosuke Yamabata

EG:431-L1

FIRESTORMS

In both cities, the atomic flash ignited fires near ground zero, which quickly spread out of control and merged into a general conflagration. There was little with which to fight it: fire stations and equipment had been destroyed, fire fighters killed or injured, water pipes broken.

In Hiroshima, the rising plume of hot gas from the conflagration generated strong winds blowing toward the center and feeding a firestorm. The winds reached 65 kilometers (40 miles) per hour two to three hours after the blast. In the center of the firestorm, temperatures reached 1,900C (3,450F). Wood and fabric burst into flame; the steel structures of bridges and buildings twisted out of shape; metal, glass, and stone were shattered, melted, and fused.

EG:431-L1a-P1a
Color maps of destroyed areas in H. and N.

Hiroshima: The extent of the destruction.

EG:431-L1b-P1b

Nagasaki: The Urakami Valley destroyed.

EG:431-L1c-P1c

Hiroshima, 11:15 a.m., August 6, 1945
Taken from the Kanda Bridge about three hours after the explosion, this photo shows the firestorm sweeping across the city.
Photograph by Mitsuo Matsushige

EG:431-L1d,e-S1d,e

Coins and glass bottles fused by the intense heat of the Nagasaki fires.
Loaned by the International Culture Hall, Nagasaki

EG:431-L1f-S1f

Half-destroyed bronze image of the Buddha, Hiroshima.
Loaned by the Hiroshima Peace Memorial Museum

EG:431-L1g-S1g

The head of an angel, Urakami Cathedral, Nagasaki. Stone objects, such as the statuary at the cathedral, were the most likely to survive in a city built largely of wood and paper. This head also shows the shadows burned in by the intense heat of the bomb's initial flash.
Loaned by the International Culture Hall, Nagasaki

EG:432-L1

ALL THAT REMAINS...

Scattered here and there among the ashes, a handful of objects survived to remind families of members who had simply vanished.

EG:432-L1a-S1a

A Traditional Hair Pin

This kanosashi, an ornamental hair pin worn with a traditional kimono, belonged to one of eight family members who died in their home in the Takanakubo-machi district of Nagasaki.
Loaned by the International Culture Hall, Nagasaki

EG:432-L1b-P1b
Photo of Mrs. (Ck) (to be obtained from Nagasaki)

EG:432-L1c-S1c

A Water Bottle

This water bottle belonged to Yoshiko Kitamura, who was conscripted to work in the Zakoba-cho neighborhood of Hiroshima at the time of the explosion. Her body was never found.
Loaned by the Hiroshima Peace Memorial Museum

EG:432-L1d-S1d
(Cloth Tag, label to come)

Loaned by the International Culture Hall, Nagasaki

EG:432-L1e-P1e
(Photo to accompany cloth tag to be obtained from Nagasaki)

EG:433-L1

SCENES OF DESTRUCTION: HIROSHIMA AND NAGASAKI, AUGUST 7-10, 1945

EG:433-L1a-P1a

The Urakami Valley area in Nagasaki, August 10, 1945.
Photograph by Yosuke Yamahata

EG:433-L1b-P1b

The ruins of Hiroshima in the direction of the Industrial Promotion Hall, August 1945.
Courtesy of the National Archives

EG:433-L1c-P1c

Burned streetcar and passengers, near ground zero in Nagasaki, 11 a.m., August 10, 1945.
Courtesy of the National Museum of Health and Medicine, Armed Forces Institute of Pathology

EG:433-L1d-P1d

Search parties, Nagasaki, August 10, 1945.

EG:433-L1e-P1e

The ruins were still smoking near the Sanno Shinto shrine in Nagasaki at 11 a.m., August 10, 1945.
Photograph by Yosuke Yamahata

EG:433-L1f

"Many corpses were found at places where there was water--rivers, old wells, cisterns, ponds and the like. People who did not die instantly had, it appears, exerted themselves to the limit in their search for water."
A member of the Water Transport Rescue Team, Hiroshima, 1945

EG:433-L2

COPING WITH CHAOS

The loss of city and prefectural officials, military leaders, hospitals, and medical professionals hampered the organization of relief efforts. Surviving doctors and nurses established makeshift relief stations, but beds, essential medical supplies, and trained personnel were in desperately short supply.

Relief parties moving into the devastated areas discovered that there were few people left to rescue. Their biggest task was the recovery and disposal of tens of thousands of corpses, many of which were buried beneath the rubble of the city.

EG:433-L2a-P2a

Rescue teams arrive in Hiroshima, August 9, 1945.

EG:433-L2b-P2b

Refugees in Nagasaki, August 10, 1945.
Courtesy of the National Archives

EG:433-L2c-P2c

Aid station [label to be determined]

EG:433-L2d-P2d

Assisting the wounded in Nagasaki, August 10, 1945.

EG:433-L2e-P2e

Temporary first-aid headquarters, Sumitomo Bank, Hiroshima, August 12, 1945. Anxious family members scan the list of the wounded located in various aid stations.

EG:433-L3

A STORY OF SURVIVAL

"I thought she was dead, but finally found her alive. I hoped that she could at least die at home, so I borrowed a cart from a neighbor and went to Kuba to take her home. I had brought her up since she was two years old after her father died.... I took her to the Red Cross Hospital every day. I remember someone taking our picture on the way back from the hospital.... She was so pitiful, burned on the left side of her body, face and arm. I still cry when I think of it."
Kohide Matsuda, Hiroshima

EG:433-L3a-P3a

Kohide Matsuda transports her niece, Toyoko, to the Hiroshima Red Cross Hospital. Toyoko Matsuda was on her way to work, 2.6 kilometers (1.6 miles) from ground zero, when the atomic bomb exploded. Her aunt found her alive in an aid station at Kuba, 23 days after the blast. Toyoko Matsuda later married and became the mother of three children. When this picture was first published in June 1973, the two women came forward to identify themselves.
Courtesy of the National Museum of Health and Medicine, Armed Forces Institute of Pathology

EG:433-L4

COUNTING THE DEAD

The chaotic conditions in both cities following the bombing made it difficult to assess the human dimension of the destruction. The radiation effects complicated casualty estimates, because they continued to cause deaths and injuries weeks, months, or years afterward.

Several studies based solely on the disposal of bodies set the initial toll for Hiroshima at between 42,000 and 93,000. A more detailed survey, combining body counts, unresolved missing person reports, and interviews, was conducted by neighborhood associations during the year following the bombing. It suggests that as many as 130,000 people lost their lives as a direct result of the bomb up to the beginning of November 1945. A similar survey set the final death toll for Nagasaki at about 74,000. The exact numbers will never be known.

EG:433-L4a-P4a

Mortality at Hiroshima

This graph shows the percentage of individuals who were killed plotted against distance from ground zero. More than 90 percent of those who were within 500 meters (1,600 feet) died within one day.

EG:440-L1
Main title

A DEADLY NEW THREAT: RADIOACTIVITY

EG:440-L2
Main text

The scientists who designed the atomic bombs knew of these weapons' potential heat and blast effects, but were only partly aware of the long-term dangers of radioactivity. They nonetheless expressed concern over the possibility of radioactive fallout from the "Trinity" test in New Mexico, which was conducted near ground level. But even the leaders of the Manhattan Project were surprised by the contamination produced by this explosion. As a result, they decided that the weapons dropped on Japan should be detonated at a higher altitude to minimize fallout and maximize the blast wave.

Most scientists continued to believe that radiation would not claim many victims when the bombs were dropped. Japanese buildings were so poorly constructed, they reasoned, that those most in danger from radiation would already have been killed as a result of the blast and heat. To their surprise, many cases of radiation sickness appeared soon after the bombings.

EG:441-L1

INITIAL RADIATION EFFECTS

A nuclear bomb emits a concentrated burst of high-energy radiation--chiefly gamma rays and neutrons--at the instant of the explosion. At Hiroshima and Nagasaki, this initial radiation caused damage to the tissues of people and animals located within about 2,000 meters (1.2 miles) of ground zero. People exposed to high radiation dosages close to ground zero often died within hours or days, even if they had been shielded from the other effects of the bombs.

The initial burst of radiation also induced radioactivity in buildings, soil, and other materials located near the centers of the explosions. This contamination caused radiation sickness too, but to a lesser degree than the initial radiation.

EG:441-L2

RADIOACTIVE FALLOUT: THE "BLACK RAIN"

Radioactive material created by the atomic explosions was carried high into the atmosphere by the mushroom clouds. Soot carried aloft on thermal currents generated by the fires, when combined with this material, led to radioactive rain in or near the two cities 20 to 40 minutes after the bombings.

The "black rain," as it came to be known, carried the radioactive materials back to earth in the form of fallout. The sticky, dark water stained skin, clothing, and buildings. Contact with the skin, ingestion through breathing, or the consumption of contaminated food or water often resulted in radiation sickness.

EG:441-L2a-S2a

Black rain stains
The dark streaks on this woman's slip were made by black rain that fell northwest of Hiroshima for several hours after the bombing.
Loaned by the Hiroshima Peace Memorial Museum

EG:441-L2b

"The black rain began to fall and I wondered what it was.... It gave me a horrible feeling.... Later, people said it might be oil rain.... We wondered if it was oil to make fire or to harm people...whether they might be planning to kill all of the people by burning them...or whether this oil would stick to the skin of all the people, making everyone die one after the other...."
Yoko Ota, Hiroshima

EG:441-L2c

"I went to report to the dean of the college that the patients had been evacuated, but I found him covered by a raincoat and lying asleep on a hill-side vegetable patch with terrible wounds all over his body. Large drops of black-colored rain were falling and spattering on the raincoat. I thought to myself for the first time that Japan had lost the war."
Dr. Takashi Nagai, Nagasaki

EG:441-L2d-P2d

A white plaster wall in Hiroshima was permanently stained by "black rain."

EG:441-L3

THE MYSTERIOUS "A-BOMB DISEASE"

Physicians treating bomb victims in Hiroshima and Nagasaki were puzzled by the number of people suffering from unexplained loss of appetite, nausea and vomiting, abnormal thirst, diarrhea, and general malaise. The symptoms occurred alone or in combination within three hours after the explosion in up to 30 percent of the survivors.

Other symptoms also occurred within days and weeks after the bombings. People suffered widespread hair loss, internal hemorrhaging, and reddening and pain in the larynx, gums, and palate. Skin hemorrhages and lesions appeared on the face, chest, neck, and upper arms. The symptoms appeared in over 60 percent of all Hiroshima survivors who had been within 1 kilometer (0.6 miles) of ground zero, but in only 7 percent of those over 5 kilometers (3 miles) of ground zero.

By early September 1945, Japanese physicians and American authorities began to realize that many bomb survivors were suffering and dying from radiation sickness.

EG:441-L3a-P3a
color

Exposed 1,000 meters (0.6 miles) from ground zero in Hiroshima, this soldier began losing his hair on August 18. He was hospitalized on August 30, when the first signs of hemorrhaging were observed. He lost consciousness on September 2 and died the next day, two hours after this photo was taken.
Photograph by Kenichi Kimura, courtesy of the National Museum of Health and Medicine, Armed Forces Institute of Pathology

EG:441-L3b

"An old woman...died within a few days of the bomb, showing many spots on her body.... I know it is terrible to say this, but those spots were beautiful. They were just like stars--red, green-yellow and black--all over her body, and I was fascinated by them."
Physician, Hiroshima

EG:441-L3c

"We heard the new phrase, 'A-bomb disease.' The fear in us became strong, especially when we could see certain things with our eyes: a man looked perfectly well when he rode by on a bicycle one morning, suddenly vomiting blood and then dying.... Soon we were all worried about our health, about our own bodies--whether we would live or die. And we heard that if someone did get sick, there was no treatment that could help. We had nothing to rely on, there was nothing to hold us up."
A Buddhist priest, Hiroshima

EG:442-L1

LONG-TERM EFFECTS OF THE BOMBS

The immediate crisis in Hiroshima and Nagasaki had passed by the end of December 1945. People who had suffered from radiation poisoning had either died or apparently recovered. However, it soon became obvious that exposure to radiation created longer-term health problems.

Thermal burns became covered with disfiguring scars known as keloids. Severe anemia and other blood disorders, cataracts, sterility in both sexes, and menstrual irregularities appeared. Children exposed to high doses of radiation while in the womb faced a 20 percent risk of being mentally retarded. Some exposed children were born with unusually small heads or other deformities.

EG:442-L1a-P1a

The keloid scars resulting from initial burns cannot be surgically removed. Keloids permanently disfigured faces and twisted the muscles of arms, hands, and legs.
Courtesy of the National Museum of Health and Medicine, Armed Forces Institute of Pathology

EG:442-L1b

"How would people look at me. The more I thought about it the more apprehensive I became.... The burns on my back did not heal for fifteen years, and I had to receive treatment for them continuously. After a skin transplant operation in 1960 the wounds finally covered over, but ulcers soon formed in the [keloid] scars. The ulcers got worse and five years ago I entered another hospital and received another operation to remove them. Subsequently, I have been in and out of the hospital repeatedly.... According to my doctor, modern medical science still knows of no efficient method to treat these lesions."
Sumiteru Taniguchi, Nagasaki

EG:442-L2

CANCER AMONG SURVIVORS

The incidence of some cancers is higher than normal among bomb survivors. A noticeable increase in cases of leukemia (a cancer of the blood) appeared in Hiroshima and Nagasaki about two years after the bombings. The disease climbed to a peak among survivors between 1950 to 1953.

The incidence of cataracts of the eye and cancers of the urinary tract, breast, lungs, colon, esophagus, and stomach were also higher among atomic bomb survivors. Genetic damage was apparent in the nonreproductive cells of atomic bomb survivors, but there is no evidence that genetic problems have been passed to future generations.

EG:442-L2a-P2a
Diagram to be redrawn

Estimated relative risks of cancers for individuals exposed to radiation at a distance of 1 to 1.5 kilometers (0.6 to 0.9 miles) from ground zero at Hiroshima and Nagasaki.
Courtesy of the Radiation Effects Research Foundation

EG:442-L3

THE ATOMIC BOMB CASUALTY COMMISSION

To obtain a better understanding of the effects of radiation on large populations, the U.S. government established the Atomic Bomb Casualty Commission (ABCC) in 1947. The commission would eventually identify 120,000 bomb survivors, establish their precise location at the time of the bombings and their radiation dosage, and monitor their health over an extended period.

The commission was criticized in Japan for its refusal to provide health services to victims. That decision was based on a reluctance to draw patients away from Japanese physicians and on the American perception that treating the survivors would amount to an apology for the bombings. Some Japanese claimed that the U.S. government regarded the atomic bombings as an experiment and the survivors as guinea pigs. In 1975 the ABCC was reorganized as the Radiation Effects Research Foundation with joint Japanese-American participation.

EG:442-L3a-P3a

ABCC doctors carried out systematic studies of bomb survivors and their offspring, as shown in this 1948 photograph.
Courtesy of the Radiation Effects Research Foundation

EG:442-L3b-P3b

The Radiation Effects Research Foundation, still active today, has proven invaluable in advising those treating victims of nuclear accidents. Shown here is a delegation of Soviet scientists who came for consultations regarding the 1986 explosion of the reactor at Chernobyl in the Ukraine.
Courtesy of the Radiation Effects Research Foundation

EG:443-L1

SADAKO AND THE THOUSAND PAPER CRANES

Sadako Sasaki was two years old when she was exposed to radiation 1,600 meters (1 mile) from ground zero in Hiroshima. In 1955 the healthy 12-year-old girl, the fastest runner at the Noborimachi Primary School, was diagnosed as suffering from acute leukemia. According to Japanese folk belief, cranes live a thousand years and are a symbol of good health. Sadako spent the last months of her life attempting to fold a thousand paper cranes. When she died in October 1955, she had completed only 964. Her classmates finished the rest.

Determined to raise funds for a monument to Sadako and the other children who may have died as a result of the bomb, the young people of Hiroshima began a letter writing campaign to schools across Japan. The effort captured the public imagination and established Sadako as a symbol of the cost of war in the nuclear age. Today her statue stands in the Hiroshima Peace Memorial Park, adorned with thousands of paper cranes that arrive each year from school children around the world.

EG:443-L1a-P1a

Sadako Sasaki as a fifth grader at Noborimachi Elementary School, Hiroshima.

EG:443-L1b-P1b

Dedication of the statue in memory of Sadako Sasaki and the other "A-bomb children," Hiroshima Peace Memorial Park, May 5, 1958.

EG:444-L1

AFTER THE BOMB: TWO CITIES REBUILD

EG:444-L1a-P1a

The skeletal dome of the Industrial Promotion Building--a symbol of Hiroshima for 50 years.

EG:444-L1b-P1b

The rebuilt Urakami Cathedral in Nagasaki.

EG:500-L1
Unit main title

JAPAN SURRENDERS

EG:500-L2
Unit main text

"The destruction of Hiroshima and Nagasaki put an end to the Japanese war. It stopped the fire raids, and the strangling blockade; it ended the ghastly specter of the clash of great land armies."
Secretary of War Henry L. Stimson

The atomic attacks played the crucial role in the sudden surrender of Japan on August 14, 1945--only eight days after the bombing of Hiroshima and five days after Nagasaki. They were accompanied by the Soviet Union's declaration of war on August 8-9, which destroyed the hopes of the Japanese elite for a compromise peace through Moscow. Immediately following their declaration of war, the Soviets launched a massive surprise attack, overrunning the Japanese army in Manchuria and Korea.

EG:500-L2a-P2a

Allied prisoners of war cheer rescuers, as the U.S. Navy arrives at the Aomori POW camp near Yokohama, August 29, 1945. They are waving the flags of the United States, Great Britain, and the Netherlands.
Courtesy of the U.S. Naval Institute

EG:500-L3

HIROSHIMA AND THE SOVIET DECLARATION OF WAR

Soon after the bombing of Hiroshima, the Japanese government received reports about the destruction of the city and the unique character of the weapon. President Truman's August 6 announcement of the nuclear attack, broadcast throughout the world, increased the shock of the bombing because it revealed to the world the United States' harnessing of atomic power--a stunning and revolutionary scientific achievement.

The Soviet offensive against Japan was not planned to take place until mid-August. Afraid that the war would be over before he could gain a share of the spoils, on the evening of August 7, Soviet dictator Joseph Stalin ordered his forces to attack the Japanese army in north China 24 hours later. Shortly beforehand, the Japanese ambassador was handed a surprise declaration of war.

EG:500-L3a-P3a
Headlines from U.S. newspapers about Hiroshima.
No caption needed.

EG:500-L3b-P3b

Soviet tanks and trucks in the Manchurian steppe in north China, August 1945.
Courtesy of Sovfoto/Eastfoto

EG:500-L3c-P3c
Campaign map

The Soviet campaign against the Japanese army in northern China and Korea, August 1945.

EG:500-L4

THE EMPEROR INTERVENES
"The time has come when we must bear the unbearable.... I swallow my own tears and give my sanction to the proposal to accept the Allied proclamation."
Emperor Hirohito, August 10, 1945

The Japanese government and military leadership was unable to meet until August 9, after the Soviet declaration of war. Throughout the day, the peace faction, led by Foreign Minister Togo, was stalemated by the military hard-liners, who would not accept surrender. Even the news of the Nagasaki bombing did not break the deadlock. The key issue was the preservation of the monarchy. Togo argued for accepting the Allies' Potsdam Declaration, as long as it "would not comprise any demand which would prejudice the prerogatives of His Majesty as a Sovereign Ruler."

The deadlock provoked an emergency conference with Emperor Hirohito in his air-raid bunker around midnight, August 9-10. At the end of this meeting, the Emperor stated his wish that Japan offer to surrender on the terms proposed by Togo.

EG:500-L4a-P4a

Emperor Hirohito meeting with the Supreme War Council.
Courtesy of Lapi-Viollet

EG:500-L5

TRUMAN AND THE EMPEROR QUESTION

"From the moment of surrender the authority of the Emperor and the Japanese Government to rule the state shall be subject to the Supreme Commander of the Allied Powers who will take such steps as he deems proper to effectuate the surrender terms."
U.S. note to Japan, August 10, 1945

The Japanese surrender offer of August 10, which sought to keep Emperor Hirohito on the throne, provoked disagreement among President Truman's advisers. The President's Chief of Staff, Admiral Leahy, argued for immediate acceptance. Secretary of State Byrnes, however, felt that a clear statement that the Emperor could stay would lead to "the crucifixion of the President" by an angry public demanding unconditional surrender. Truman eventually instructed Byrnes to send a note that said nothing about the ultimate fate of the Emperor.

EG:500-L5a-P5a

American servicemen read news of the Japanese surrender offer, August 10, 1945.
Courtesy of

EG:500-L6

NO THIRD ATOMIC BOMB

On August 10, while discussing the Japanese surrender offer, President Truman ordered that no more atomic bombs be dropped until further notice. According to the diary of Commerce Secretary Henry Wallace, Truman told the Cabinet that "the thought of wiping out another 100,000 people was too horrible. He didn't like killing, as he said, `all those kids.'" Although he had written in his Potsdam diary in July that the target for the first bomb would be purely military, Truman clearly understood after Hiroshima that whatever the target, the atomic bomb could destroy whole cities.

Because of Truman's order, General Groves held up the shipment to the Pacific of the plutonium 239 core for another "Fat Man" bomb, which was to be available for a mission around August 20. Further plutonium cores could have been shipped to the Pacific about every three to four weeks thereafter. But no uranium 235 for a "Little Boy" bomb would have been available for some months.

EG:500-L6a

"For myself I certainly regret the necessity of wiping out whole populations because of the `pigheadedness' of the leaders of a nation, and, for your information, I am not going to do it unless it is absolutely necessary. It is my opinion that after the Russians enter into the war the Japanese will very shortly fold up. My object is to save as many American lives as possible but I also have a human feeling for the women and children of Japan."
President Harry S. Truman to Senator Richard Russell, August 9, 1945

EG:500-L6b-S6b
(if available)

On this August 10, 1945, memorandum from General Groves to General Marshall, Marshall has written that a third bomb is "not to be released on Japan without express authority from the President."
Lent by the National Archives

EG:500-L7

A "LIVING GOD" SPEAKS

The American note of August 10 did not clearly guarantee the Emperor's position. This provoked another deadlock in the Japanese ruling elite. Even after the atomic bombings, the militarist hard-liners felt that there was no choice but to fight the war to the bitter end. After some careful maneuvering by the leaders of the peace faction, the Emperor called another emergency conference in the Imperial Palace bunker on August 14 and once again asked that the government accept the American terms.

During the night of August 14-15, military officers tried to overthrow the government to prevent the surrender, but the attempt failed because of lack of support in the Army. At noon, Tokyo time, August 15, 1945, the Japanese people for the first time heard the voice of the Emperor on the radio. His recorded message was hard to understand, because it was in archaic, court Japanese, but it conveyed stunning news: Japan had lost the war.

In all Allied countries, that same day was one of riotous celebration: V-J Day. World War II was over.

EG:500-L8

"The enemy has begun to employ a new and most cruel bomb, the power of which to do damage is indeed incalculable, taking the toll of many innocent lives. Should We continue to fight, it would not only result in an ultimate collapse and obliterating of the Japanese nation, but it would lead to the total extinction of human civilization. Such being the case, how are We to save the millions of Our subjects; or to atone Ourselves before the hallowed spirits of Our Imperial Ancestors? This is the reason why We have ordered the acceptance of the provisions of the Joint

Declaration of the Powers.... It is according to the dictates of time and fate that We have resolved to pave the way for a grand peace for all the generations to come by enduring the unendurable and suffering what is insufferable."
Emperor Hirohito, August 14, 1945

EG:500-L8a

"The peace party did not prevail until the bombing of Hiroshima created a situation which could be dramatized."
Emperor Hirohito to Gen. Douglas MacArthur, September 27, 1945

EG:500-L9

SHOCK AND SURRENDER

Prime Minister Suzuki told his American interrogators after the war that the atomic bomb had enabled his military colleagues to surrender honorably. To surrender when one's powers of resistance remained was dishonorable; to surrender to a force of overwhelming power was acceptable without loss of face. No brigades of children with bamboo spears, no kamikaze attacks, no spiritual strengths could overcome such might.

Japan had reversed itself previously in the face of superior power. The bombs dropped on Hiroshima and Nagasaki, and the prospect of more to come, compelled Japan to surrender, lest it be destroyed forever. This was the argument that Hirohito made in council to his government, and it ended the war.

EG:500-L9a-P9a

President Truman announces the Japanese surrender to the press, 7:00 p.m., Washington time, August 14, 1945.
Courtesy of the National Archives

EG:500-L9b-P9b

Japanese citizens listen to Emperor Hirohito's surrender announcement, August 15, 1945.
Courtesy of Kodansha International|Birnback

EG:500-L9c-P9c

American sailors at Pearl Harbor hear the news of the surrender.
Courtesy of the National Archives

EG:500-L9d-P9d

American servicemen and women in Paris celebrate V-J Day, August 15, 1945.
Courtesy of the National Archives

EG:500-L9e-P9e

V-J Day in Times Square, New York City.
Courtesy of the National Archives

EG:500-L9f

"When the atom bombs were dropped and the news began to circulate that...we would not be obliged in a few months to rush up the beaches near Tokyo assault-firing while being machine-gunned, mortared and shelled...we broke down and cried with relief and joy. We were going to live. We were going to grow to adulthood after all."
Paul Fussell, former U.S. Army infantryman in Europe, from "Thank God for the Atom Bomb"

EG:500-L9g-P9g

The Japanese government officially surrendered on September 2, 1945, in a ceremony held in Tokyo Bay on the deck of the battleship Missouri. Standing at left is Gen. Douglas MacArthur, the newly designated Supreme Commander for the Allied Powers.
Courtesy of the National Archives

EG:500-L9h-P9h

Another view of the surrender ceremony.
Courtesy of the National Archives

EG:500-L9i-S9i

A facsimile of the original surrender document signed on the Missouri, September 2, 1945.

EG:500-L9j-S9j
(Stacked pile of Japanese swords, if available.)
No label needed.

EG:500-L10

THE OCCUPATION OF JAPAN

The American occupation of Japan laid the foundation for postwar peace and prosperity. Japan was occupied from August 1945 until the peace treaty went into effect in April 1952. While representatives of other Allied powers served on various advisory councils, General of the Army Douglas MacArthur was the dominant figure. He held the post of Supreme Commander of the Allied Powers until April 1951, when he was replaced by Gen. Matthew Ridgway.

American occupation policy sought to demilitarize Japan and to encourage the growth of democracy. Japanese war criminals were tried and convicted. A new democratic constitution went into effect on May 1, 1947. Occupation officials also initiated land reform, encouraged the establishment of political parties, instituted radical changes in the educational system, and took a variety of other measures to transform Japanese society. Generous American economic aid also contributed to Japan's remarkable economic boom, which began in the 1950s.

EG:500-L10a-P10a

General MacArthur and Emperor Hirohito in September 1945.

EG:500-L10b-P10b
[Tokyo war crimes trial photo to be added here.]

EG:510-L1

THE LEGACY OF THE ATOMIC BOMB

The introduction of atomic bombs, and their first use at Hiroshima and Nagasaki, left a powerful legacy. For the Allies and Japan, a horrendous war was brought to an abrupt end. For the world, the new weapon was a double-edged sword. It offered both the hope of preventing another global war and the danger that a failure of deterrence could destroy civilization.

During the postwar arms race between the United States and the Soviet Union, about 70,000 nuclear weapons were added to the world's arsenals--some of them a thousand times more powerful than the bombs that destroyed Hiroshima and Nagasaki. In the wake of the Cold War, these massive arsenals are being drastically reduced. But other nations still possess nuclear weapons, and some non-nuclear states as well as terrorist groups will be tempted to acquire them.

The atomic bomb cannot be uninvented. But the atomic bombings that ended World War II provide grim evidence of the devastating potential of these weapons--and perhaps the most compelling reason why they have not been used since.

EG:510-L1a-P1a
Graphic of the buildup of the number of nuclear weapons

From what had been two bombs at Hiroshima and Nagasaki sprang 70,000 at the height of the nuclear arms race--some a thousand times as powerful as the original two.

EG:520-L1
By the visitor comment area near the exit of the exhibition.

Even during the planning stages, this exhibition generated widespread debate. We invite you to add your comments to those we have already received.

EG:520-L2

A sampling of letters to the National Air and Space Museum regarding The Last Act: The Atomic Bomb and the End of World War II.

EG:520-L2a

"The `Enola Gay' dropped a bomb which ended World War II prior to my death. I could have been killed on a bombing mission on the 17th of August 1945, but I didn't have to fly that mission because the Japanese quit. They might have held out until our November 1st invasions, in which case I truly believe we would have lost a million people--and so would have Japan. I consider the dropping of the Atomic Bomb on Hiroshima to be a net gain in human lives--both on the Japanese side and on ours."

EG:520-L2b

"I am a former member of the 315th Bombardment Wing (VH), and a former pilot of the B-29 aircraft. I was bombing the coal liquefaction plant at Ube, on Honshu, the same date that the `Enola Gay' hit Hiroshima. I honestly feel that millions of lives, both American and Japanese, were saved by that one crew on that one airplane!"

EG:520-L2c

"To the extent that the exhibit furthers our eternal quest for truth, it will help to break the self-perpetuating cycle of war--at an unprecedented time in world history when widespread peace can be realistically entertained. I think the lesson to be taken from the vocal outbreak of opposition to your efforts is, again, that war wreaks atrocious devastation on humans, psyches, cities, countries, economies, politics,...everything, for years to come."

EG:520-L2d

"I was a crew member on a B-29 bombing Japan. We were shot down on our seventeenth mission bombing Yokohama on May 29th, 1945. All crew members managed to bail out successfully and were taken prisoners at various locations over the island of Honshu. We were interrogated frequently, beaten, put on a starvation diet and most of us lived crowded on the floor in cells built from an old horse stable, rife with lice and fleas and without sanitation facilities or medical help. Most of us lost at least fifty pounds during this ninety day period.... Americans, in my estimation, should make no apologies for strategic fire-bombing or dropping the atomic bomb. It took that to win the war!"

EG:520-L2e

"Most people are not aware of the poor communication between the U.S. and Japan at that time. Or that there was the possibility (we'll never know for sure) that if we had offered to let the Emperor remain in some capacity (as some of Truman's advisors suggested to him, such as former president Hoover), that the Japanese might have surrendered sooner, with a saving of lives on both sides and without the dropping of the atomic bomb. Perhaps a clear warning and/or demonstration of the atomic bomb to Japan might have encouraged surrender--little thought was given to that. And people have little awareness of those possibilities now."

EG:520-L2f

"My ship was allocated to the diversionary assault on the island of Shikoku the day before the main assault on Kyushu. I and the other 48 members of my amphibious ship felt we were assigned to a suicide mission. Harry Truman's decision to drop the bomb was <u>most</u> welcome by us."

EG:530-L1

Further information about aviation and rocketry in World War II can be found in the following exhibition galleries.
World War II Aviation (Gallery 205)
Sea-Air Operations (Gallery 203)
Jet Aviation (Gallery 106)
Space Hall (Gallery 114)

Other exhibitions on World War II can be found at the National Museum of American History.
A More Perfect Union: Japanese Americans and the U.S. Constitution examines the internment of Japanese Americans during the war.
Science in American Life has a section on the role of science during the war, including the development of the atomic bomb.
World War II GI: The American Soldier's Experience covers the life of the soldier from induction through homecoming.

EG:530-L2
[A film on the 509th Composite Group will conclude the exhibition.]